THE MORAL JUSTIFICATION FOR KEEPING ANIMALS IN CAPTIVITY

STEPHEN ST CHAD BOSTOCK

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CONTENTS

SUMMARY

I attempt a reasoned, qualified defence of zoos, but in full recognition of the moral challenge to them.

This challenge is mainly examined in chapters 3 to 7. Animals are indeed free in the wild, and must lose that freedom in some degree in zoos (3)*. However animal captivity need only share with human captivity its being brought about by an external agent, it can and should be captivity in a technical sense only, and at its best can clearly be morally acceptable (3). But there appear to be in all essential respects differences only of degree between animals and humans (4) and no reason therefore why their moral claims upon us should be any different in principle from humans' claims (5). As, in addition, there appears to be a dominating tendency in human nature which, though no doubt useful or even essential in itself, also on occasion allows us to be oblivious to our own cruelty to other humans or animals or, worse, actively to enjoy such cruelty, bad captivity is a real possibility which needs to be vigorously guarded against (6).

A comparison of the respective advantages for an animal of free and captive life shows that captivity can have the advantages of longer, more comfortable life with medical attention, but the likely drawback of an absence

of the normal problems of living, especially food-seeking, in which animals, adapted to their natural ways of life by selection through millions of years, are likely to find satisfaction (7). However the state of domestication is not normally regarded as morally objectionable, and animals in zoos are in fact slightly domesticated (8). Interestingly, domesticated animals also retain far more of their natural behaviour than is normally appreciated (8).

Certain criteria, such as health, breeding, and occurrence of natural behaviour, enable us both to assess the wellbeing or otherwise of captive animals kept in different ways, and to improve the quality of animal-keeping, as well as providing us with a means of articulating specifically and scientifically which ways of keeping certain animals are morally wrong, and which animals, if any, should not be kept at all (9). Study of an animal's natural behaviour and way of life is here of fundamental importance, as it also is in assessing the moral acceptability of ways of keeping domesticated animals (9).

Certain animals in zoos and ways of keeping them are considered in the light of the criteria, and it is suggested that there are clear indications in some cases of animals' wellbeing in captivity (10). There are also undoubted failings in much zookeeping, and it is emphasised that keeping animals should be a continuing process of search for improvements. While traditional

expertise is of great value, the importance also of being open to and endeavouring to make the fullest use of new ethological and other scientific knowledge cannot be over-emphasised (10).

The major justification for keeping any animals captive must be a demonstration of their wellbeing on the lines above (9 and 10), but there are powerful supplementary justifications which I examine in chapters 11 to 16. I see wildlife conservation as part of a moral attitude of responsibility (or "stewardship") towards anything which may reasonably be regarded as of value (11). Valuing itself I see as a fundamental moral concept, and stewardship, which term I use without any implied religious connotations, as necessarily avoiding any narrowly selfish or purely financial motivation in, especially, management of the natural world (11).

Animals themselves have exceptional and remarkable claims for being conserved, aesthetic as well as scientific (12). Respect for their own lives as individuals (as seen in 4 and 5 above) should also be a motive for their conservation (12).

While conservation in the wild must be our primary concern, zoos have a considerable supplementary conservation role to play (13). This role, if zoos can only grasp it responsibly as they should, will transform them from being the independent wildlife consumers of past history into cooperating guardians of centrally managed captive populations of endangered and other species, whose

genetic variation will be safeguarded with a view to future reintroductions if and when necessary (13). Zoos' scientific and educational roles (14 and 15 respectively) also have strong conservational connections. Zoos may also assist the protection of natural areas by satisfying much of humans' urge for wildlife contact: zoos are visited by millions of people who could never, in comparable numbers, visit "the wild" without irreparably damaging it (13).

Zoos assist science by making possible much study of animals which would be impractical if theoretically possible in the field, and allow some discoveries to be made which would be literally impossible otherwise. Many zoos should be much more scientific than they are, and human failings are often all too evident, but there is no question of the contribution zoos can make scientifically, as well as conservationally, if they will only grasp their responsibilities (14).

There is no question too of the value of real animals as an aid and as a stimulus in education, perhaps education of the feelings and the spirit even more than in academic study as such (15). It is also simply untrue that some of the animals in zoos (such as tigers) could be seen in the wild by ordinary people (15). The special value and age-old attraction for humans of involvement with animals should not be underrated (16), and, provided the kind of criteria examined earlier (9 and 10) are met, life close to man can be seen as also acceptable, though not in itself better than life in the wild (16).

However the capture and transport of, and trade in, wild-caught animals is morally wrong because of the suffering thereby caused except when carried out with the utmost responsibility and competence (17). There is an urgent need for protection of all wild animals on welfare as well as conservation grounds (17).

* NOTE:
Bracketed figures in the Summary refer to chapters. Bracketed figures after the Summary refer to the notes at the end of each respective chapter. Figures which include a full stop (e.g. 10.3) refer to sections of chapters: i.e., in this case, chapter 10, section 3.

Chapter 1

INTRODUCTION

1.1 BACKGROUND TO THE DISCUSSION

Clearly zoos pose a moral problem. Almost every writer on the subject with a general audience in mind accepts that zoos can be challenged on moral grounds, though in most cases that challenge is regarded as easy to meet at least with regard to the best zoos (1). Through the years writers such as novelists and poets have sometimes voiced criticisms (2). Letters to the Press are often written on the subject (3) and no doubt have been since at least the Thirties, though not it seems taken seriously at that time by London Zoo (4).

Criticisms of the keeping of birds in cages, though not of zoos as such, were voiced by Chaucer and in the 17th and 18th Centuries (5). Chaucer's strong criticism - he assumes what are supposed to be good captive conditions, and the best of intentions on the part of the "keeper" - is worth quoting:

> Tak any brid, and put it in a cage,
> And do al thyn entente and thy corage
> To fostre it tendrely with mete and drinke,
> Of alle deyntees that thou canst bithinke,
> And keep it al-so clenly as thou may;
> Al-though his cage of gold be never so gay,
> Yet hath this brid, by twenty thousand fold,

> Lever in a forest, that is rude and cold,
> Gon ete wormes and swich wrecchednesse.
> For ever this brid wol doon his bisinesse
> To escape out of his cage, if he may;
> His libertee this brid desireth ay. (5)

Bacon's preference for large, naturally planted aviaries sounds surprisingly modern (6). It was suggested in 1762 that animals should not be kept in a menagerie "far removed from their native element" (7).

In recent years many widespread practises which involve hurting, killing or at least using animals - e.g., medical and psychological experimentation on animals, testing of drugs and other materials, meat eating and avoidable or excessive use of other animal products, and, in particular, intensive husbandry systems or factory farms - have been strongly argued (and in many cases conclusively demonstrated, I would think) by philosophers and others to involve unnecessary suffering and to be unjust and thus immoral (8). Singer has argued on utilitarian grounds, quoting some now famous words of Bentham (9), that the capacity to suffer undoubtedly found in animals above the level of, say, bivalve molluscs, requires a concern from us equal to that we would feel for any human suffering we have reason to regard as comparable. To fail to be equally considerate to a non-human except where a given and relevant difference from humans can be demonstrated is "speciesist" (10). Clark has argued more positively than Singer, and from a different base, one which emphasises our bonds with and

justified affection for animals, for their right to live and enjoy their own lives uninterfered with by us, rather than merely be spared pain and suffering (11). Regan has explored the concept of animal rights particularly thoroughly and clearly, though with an eschewing of any suggestion of compromise, when it comes to consideration of specific treatments of animals practised today, which is perhaps unrealistic (13). Interestingly he is at odds (as Singer and perhaps Clark would tend to be also) with those who demand a respect, even a reverence, not for the lives and interests of higher vertebrates or even sentient beings as such, but rather for the natural world itself, an attitude stemming from Aldo Leopold (14) and well expressed by Rodman (15). Such an ecological ethic would seem of particular relevance to the ethics of zoos in its vision of conservation of the natural world, including its animal and plant species, as essentially ethical, were it not for its tendency to value exclusively a nature wholly unaltered and unmanaged by man. That ecological questions have in any sense given birth to a new ethics is firmly and convincingly denied by Passmore (16). The need for a practical approach to animal welfare problems, prepared to compromise if that means positive achievement, has been argued by Rollin, whose example as one firmly established in a real world I shall try to follow. Philosophers have also examined, in recent years, various non-ethical aspects of animals, though aspects related to debate about their possession or non-possession of interests and

rights: such questions as whether animals can be reasonably, even coherently, regarded as having thoughts, beliefs, emotions and so on (17).

Specific discussions of the ethics of zoos are not many but include papers by Rachels, Jamieson, and Midgley (18). Jamieson argues the case against zoos neatly and briskly, if rather too hastily to convince that a death sentence rather than reform is required. He notes and disposes of the muddled defence which claims zoos are a good thing because they offer opportunities for research to make them better. That there is a moral presumption against zoos (19), I will, in effect, take as my starting point: I shall mainly be examining what can be said in defence of zoos in the light of Jamieson's apt comment (20). Some of zoos' "defences" are of special interest and importance: conservation, certainly (and new understanding of population genetics in particular is making zoos' role here a much more practicable and precise one than it was until very recently), and more generally their educational role in providing opportunities for, in some degree, a direct encounter with living animals (21). There is at least rather more to be said, and worth saying, than Singer indicates when, dismissing them as entertainment along with circuses and rodeos, he would sweep them away with the self-same broom that he has applied so effectively to factory farming and to painful, unnecessary experimentation (22).

Apart from philosophical discussion as such, there

have also been several recent books and articles strongly critical of zoos, either against them specifically in practise only (23), or in some cases in principle, some of these supported by a recently founded British pressure group called Zoo Check, which is specifically aimed, at least in the view of its founders, at "phasing out" zoos (24). At the same time there has been enormous progress in recent years in the scientific understanding of animals' behavioural needs, including their captive requirements (25). Veterinary study and practice, which at one time rather tended to concentrate on the treatment of sickness exclusively, has now to a great extent wedded itself with ethological study of animals' behavioural needs, and of how at least in some cases their needs in captivity can be met as a result of study of their behaviour in the wild state.

So there are several diverse strands of thought and controversy which form the background and make the time ripe for an attempt to look carefully at the whole issue of the ethics of keeping animals in zoos.

1.2 OBJECTIONS TO ZOOS

I shall start by assembling a list of the various objections that could be made to the practise of keeping animals in zoos. Although I shall be putting forward, in the course of the following chapters, a qualified case for zoos, I shall also attempt to give full weight to the various arguments that can be brought against them (26).

Table 1. Some possible objections to captivity:

1a We have no right to keep animals in captivity.

1b It is unjust to do so.

1c It is arrogant to do so.

1d We have no right to keep animals in bad conditions.

2a Animals have a right to be free.

2b They have a right to live their own lives.

3 We would dislike being in captivity; animals in zoos must too.

4 Animals should not be kept in climates different from their natural ones.

5 Animals in captivity are likely to be deprived of any or all of the following:

a. Adequate space.

b. An interesting and variable environment,

c. with a variety of sensory experience.

d. Normal social relations.

e. Exercise.

f. The chance to seek and/or catch food.

g. The opportunity to live natural lives.

h. A sense of purpose or meaning.

Any or all of these deprivations may make them bored or frustrated or generally miserable, conditions we should obviously not subject them to if we can avoid it.

6 This occurs for such reasons as the following:

a. Our ignorance of different species' requirements.

b. Our stupidity.

c. Our carelessness.

d. Our pigheadedness.

e. Habit, tradition, the attitude "it has always been like this".

f. Our lack of motivation to bother.

g. Lack of money.

h. Lack of time.

i. Practical circumstances.

j. Economic considerations.

7 Various kinds of unnatural behaviour are shown by captive animals and indicate how bad their conditions are and how badly affected they can be by their conditions.

8a Animals are better off in the wild.

8b Wild animals as opposed to domesticated animals are better off in the wild.

9 Keeping any wild animals in captivity involves the capture and transport of either them or their ancestors, processes often accompanied by suffering and excessive death.

10 Taking animals from the wild is likely to damage wild populations, in some cases already endangered populations.

11 The claimed conservational role of zoos is window dressing or rationalising.

12 a) It is unaesthetic, vulgar and insulting to the dignity of animals to keep them in captivity.

b) It is bizarre and sad to see animals in zoos.

c) "Animals are seen there as dependent upon us and

submissive to our needs."

13 Animals should not be kept in captivity for ignorant people to gape at. Those wishing to see them should be prepared to go and do so in the wild. We would not think of transporting the Taj Mahal for tourists' convenience.

14 Film and television have made the natural lives of animals familiar and available to us all, so that the educational role of zoos has become superfluous.

15 Animals should not be bought and sold as if they were just marketable goods instead of creatures with lives of their own to lead.

With every one of these objections, I have some sympathy; none of them, I think, is frivolous; many of them are valid criticisms of much actual zookeeping as it still occurs today. However, I shall try to show in the course of my eighteen chapters that none of these points constitutes a final indictment of zoos; that there are today good zoos, and that there should be more tomorrow, to which none of these objections is really applicable.

1.3 DEFENCES OF ZOOS

I think it will be useful to follow the list of objections with a list of possible defences of captivity. Here, certainly, I am not providing a list of defences which I necessarily think are justified, but rather a list of arguments, or in some cases (such as No 3) mere rejoinders, which are the kind of things some people do in

fact say (or at least imply by what they say) in defending zoos. I will, to a great extent, be making what I think is a good case for zoos, but that does not mean using any and every argument for them. But for reference I am here including the bad arguments as well as the good ones:

Table 2. Possible defences of captivity:

(C = either captivity itself, or a situation in which one benefits from an animal's captivity; A = animal kept captive; K = person keeping, arranging or benefiting from the keeping of the animal)

1a C is a technical matter which you are in no position to criticise without proper qualifications.

1b The proper qualification is to be a practiser of C.

2 A is not important so that it does not matter what is done to him or it.

3 Whether A is important or not, we are going to do it anyway; it is none of your business; it is a purely personal or internal or local matter.

4a You are being sentimental.

4b You are being emotional.

5 You are being anthropomorphic; A is just different from us.

6 A deserves C through guilt.

7 C is in some other way appropriate for A.

8a C of A is traditional.

8b C should be conserved.

9a A is in a state of wellbeing in C.

9b A, given the choice, would choose C.

10 You are picking bad examples of C; they are not a fair sample.

11 C of A gives K or others one or more of the following benefits:

a. Pleasure.

b. Money.

c. Employment.

d. Occupation and interest.

e. Life-enrichment.

12 C of A assists the conservation of A's species.

13 C of A gives K or others one or more of the following benefits:

a. Knowledge and understanding of how to breed A in captivity.

b. Knowledge and understanding of A's biology etc in general.

c. Appreciation of A or A's species or other species.

d. Help in alleviating suffering, disease etc in man.

e. Help in alleviating suffering, disease etc in animals.

14a K cannot help carrying out C;

14b In carrying out C, K is fulfilling an instinctive part of his nature;

14c C makes K feel better;

14d C assists K's mental health.

15 It is not practicable to stop C of A.

Of these possible defences of zoos, I think that the following are bad arguments:

1b ("Need to be involved to criticise.")

2 ("Animals are not important...") (27)

3 ("Not your business...") (28)

4a ("Sentimental...")

4b ("Emotional...")

6 ("Guilt...")

7 ("Otherwise appropriate...")

11a ("Pleasure to people...")

11b ("Earns money.")

11c ("Provides employment.")

13a ("Understanding of captive breeding..."): To strive for this is very important because of (if it is accepted as valid) zoos' conservational captive breeding role. But 13a can not in itself constitute a justification of zoos.

14a ("Can not help it."): one has just got to control one's activities if they are immoral; inability to do so is not a moral justification, though it may be a psychological or legal one.

The good arguments, I think, are:

1a ("Technical matter."): this is certainly often relevant (not least, today, with the conservational role of zoos), though it can not constitute a final moral justification (29). It can hardly be universally valid else we could not condemn bullfighting without being matadors or burglary without being burglars.

5 ("Anthropomorphic"): This is sometimes valid, but often not (see chapters 4 and 9.5 below).

8a ("Traditional")

8b ("The practice should be conserved"): I think that both these defences, especially 8b, are worth something: they are reasons for not charging in too readily to condemn or abolish. But they obviously have to be used with caution (see chapters 11, 13 and 14 below).

9a ("State of wellbeing in captivity..."): I regard this as the major, and in the end the only individually valid, defence of zoos, though I well understand those who feel that only a combination of this one with 12 ("Conservation of species") constitutes a valid defence of any zookeeping. I look at defence 9a mainly in chapters 9 and 10 below.

9b ("Would choose it."): Where we really can be sure that this is the case, it is probably the surest demonstration of the truth of 9a, and thus a very strong defence. (See particularly 9.5 below.)

10 ("Bad examples..."): I think this often is a fair point. It is merely to say that from the fact that some

zoos are bad in whole or part it does not follow that all zoos are bad. If any profession (e.g. that of the police, the army, the clergy, politicians) is to be entirely condemned on the grounds that some practisers of that profession somewhere in the world are bad, a great many obviously honourable people stand condemned. There are some very good zoos, and there are good parts of less good zoos. It is only the good zoos, and the good parts of less good zoos, that I am attempting to justify. (Of course, no zoo is going to be entirely good; but that applies to any human institution whatever.) I refer frequently to certain good zoos, especially in chapter 2 and chapters 9 and 10.

11d ("Occupation and interest"): This is perhaps worth something as a moral defence, but only as a supplement to 9a.

11e ("Life-enrichment for people..."): I think this is an important justification, but again only as a supplement to 9a.

12 ("Conservation of species..."): This is, in my view, a very serious and important justification, even though it should not be used, as admittedly it often is, as a blanket defence of all zookeeping. I look at it in chapters 11, 12 and, especially, chapter 13.

13b ("Understanding of biology in general..."): This is in my view an important justification, much underrated by some zoo critics, though only valid as a supplement to Defence 9a. I examine it in both chapters 14 and 15.

13c ("Appreciation..."): Again, a very important

justification, though only as a supplement to 9a. I look at this in chapters 15 and 16. Chapter 12 is also very relevant.

13d ("Disease alleviation in man..."): This seems very peripheral; however it is a valid supplementary justification for one or two zoos, such as those (London and Whipsnade) of the Zoological Society of London I make some reference to this in chapter 14.

13e ("Disease alleviation in animals..."): This is quite an important supplementary defence, on which see chapter 14 below.

14b ("Fulfilling instinctive part of one's nature..."): Obviously such a justification has to be treated with great caution, and in any case can only be valid as a supplement to 9a. But I include it in recognition of what I think is the fact that some zookeeping, or some aspects of zookeeping, involve a relationship with an animal in which aspects of human nature (such as our ability to dominate psychologically, not necessarily improperly) are involved as well as, probably, similar aspects of the nature of the animal concerned. See, for example, my comments on the human ability to control an elephant (or a dog) in chapter 6.

14c ("Makes one feel better...")

14d ("Necessary for mental health..."): Neither 14c nor 14d can be valid except as a supplementary justification to 9a, but no-one can afford to disregard them in view of the evidence now available of the medical and

psychological benefits to people from keeping and from close contact with animals.

15 ("Not practicable..."): if a practise is immoral, then it is immoral, whatever the practicalities, so it may seem strange to include this as a good defence of zoos. I only see it, of course, as a supplement to 9a, but, if one is satisfied of the truth of 9a with regard, say, to a particular zoo, then it is worth observing that zoos have all sorts of minor useful functions such as answering the public's questions, advising the police or the customs on the identification of imported animal items like skins, and so on. They play a useful even if not essential part in society.

Before tackling any of these topics in more detail, I shall look, in the following chapter, at the long history of zoos. I shall then take a preliminary look at what we mean by "captivity", and also what we mean by "wildness" and "freedom", before examining the, to me, very striking and significant similarities of other animals to ourselves. That will be a foundation from which to establish what I see as the rights we should recognise animals as having. I then consider one of the factors in the extent to which animals' (and humans') rights are overridden, that is, man's tendency towards cruelty and also domination (which, unlike cruelty, I think is in many ways benign). I then compare conditions in the wild and in captivity, look at the extent to which wild animals and domestic animals are not (in my view) so utterly different

as is often imagined, and attempt to establish criteria for judging animals' wellbeing in zoos (or anywhere else), which I then attempt to apply to some selected animals widely kept in zoos. These chapters constitute my main case for the defence of zoos. I then endeavour to support it by examining the, to me, essentially moral aspect of conservation as an attitude and a practise, emphasise the special value of animals and try to show how zoos really do have a genuine role to play in animals' conservation. The following chapters look at the roles in science, education and enrichment of the human environment that (in my view) zoos in some degree perform. Finally I try to show that, although zoos can be justified, the commercial and uncontrolled taking of animals from the wild (even when they are not rare and there is no conservational objection to this occurring), must be condemned. But first, a look at zoos' history.

NOTES TO CHAPTER 1

1. For example:
H. Hediger, Wild Animals in Captivity (New York: Dover, 1964), pvii and p181.
S. Zuckerman, Great Zoos of the World: Their Origins and Significance (London: Weidenfeld & Nicolson, undated).
E. Hahn, Zoos (London: Secker and Warburg, 1968), p 13.
S. Campbell, Lifeboats to Ararat (London: Weidenfeld and Nicolson, 1979), p xv.
J. Cherfas, Zoo 2000: A Look Beyond the Bars (London: BBC, 1984), p226.
G. Durrell, The Stationary Ark (Glasgow: Fontana/Collins), p30.
G. Schomberg, The Penguin Guide to British Zoos (Harmondsworth: Penguin, 1970), p7.
A. Smith, Animals on View: A Comprehensive Guide to the Zoos and Wildlife Collections of Britain (London: Mayflower/Granada, 1979), pxxiii.
O. Graham-Jones, Zoo Doctor (Glasgow: Fontana/Collins,

1973), p154.

W. Fiedler, Tiergarten Schonbrunn - Geschichte und Aufgabe (Vienna: V.W.G.O., 1976), p186.

P.B. and J.S. Medawar, Aristotle to Zoos, A Philosophical Dictionary of Biology (London: Weidenfeld & Nicolson, 1984), p284.

2. L. Woolf, An Autobiography, Volume 2, 1911-1969 (Oxford: O.U.P., 1980), pp215-218. "I am ambivalent about zoos: I have an uneasy feeling that one should not keep animals in cages, but I never get tired of watching animals anywhere..."

H.H. Munro, "The Mappined Life" in The Complete Works of Saki (New York: Doubleday, 1976; first pub. 1914), pp 479-482: "Nothing will make me believe that an acre or so of concrete enclosure will make up to a wolf or a tiger-cat for the range of night prowling that would belong to it in a wild state..."

J. Galsworthy, The Forsyte Saga (London: Heinemann, 1922), pp 189-191: "To shut up a lion or tiger in confinement," thought Young Jolyon at London Zoo, "was surely a horrible barbarity."

E.H. Young, Chatterton Square (London: Reprint Society, 1949), p 172. "...the beasts in the zoo, here, were silent. Like the other beasts, in another country, it was at night they roared, but not with frenzy, not gathering for the hunt; theirs was the awful indignation of the wrongfully imprisoned who have no redress."

Poems worth mentioning are Ted Hughes' The Jaguar; and in the last century, Thomas Hood's Remonstratory Ode (a useful contemporary account of the notorious London menagerie, Exeter Change).

3. For example an extensive correspondence in The Times in August and September 1980, and in The Independent, August and September 1987.

4. L.R. Brightwell, Zoo Calendar (London: Hutchinson, undated but probably 1934), p110. "August is the slack season so far as the newspaper world is concerned... It usually happens then that the month is dedicated by some inspired scribe to fostering public interest in that age-old, futile controversy, "Is the Zoo cruel?"... The one body that remains utterly uninterested in the controversy is the Zoo itself. It is far too busy quietly studying and steadily improving the condition of the creatures in its care to bother with such matters." In view of the dates of the Times and Independent letters (see previous note), Brightwell's comment on the seasonal regularity of newspaper zoo ethics correspondence seems as true of the 1980's as, presumably, the 1930's.

5. Chaucer, The Maunciples Tale, lines 163-174. Also see K. Thomas, Man and the Natural World, Changing Attitudes in England 1500-1800 (Harmondsworth: Penguin, 1984), pp 152, 279 and 288n.

6. "For aviaries, I like them not, except they be of that largeness as they may be turfed, and have living plants and bushes set in them; that the birds may have more scope

and natural nestling..." Francis Bacon, "Of Gardens".

7. Thomas, op. cit., p 288n. A view put forward today by Bill Jordan, according to S. Boseley, "Zoos face biggest challenge in their history", Guardian 15 April 1985, p 4: "There should be no tropical animals ever. The climate in this country is not right."

8. S. and R. Godlovitch and J. Harris (eds), Animals, Men and Morals: An enquiry into the treatment of non-humans (London: Gollancz, 1971).

R.D. Ryder, Victims of Science, The Use of Animals in Research (London: Davis-Poynter, 1975).

P. Singer, Animal Liberation, Towards an End to Man's Inhumanity to Animals (London: Paladin/Granada, 1977.

S.R.L. Clark, The Moral Status of Animals (Oxford: O.U.P., 1977).

T. Regan, The Case for Animal Rights (London: Routledge & Kegan Paul, 1983).

M. Midgley, Animals and Why They Matter (Harmondsworth: Penguin, 1983).

9. "....The question is not, Can they reason? nor Can they talk? but, Can they suffer?" Bentham, Introduction to the Principles of Morals and Legislation, Ch XVIII, Sec. 1, note.

10. A term coined by Richard Ryder and explained carefully by Singer, op. cit., pp26-28.

11. Clark, op. cit.

12. Clark, op. cit., pp14ff, 17.

13. Regan, op. cit.

14. A. Leopold, A Sand County Almanac (New York: O.U.P., 1949).

15. J. Rodman, "The Liberation of Nature?", Inquiry, 20, 83-145.

16. J. Passmore, Man's Responsibility for Nature (London: Duckworth, 1980).

17. B.E. Rollin, Animal Rights and Human Morality (New York: Prometheus, 1981).

J.A. Nelson, "Recent Studies in Animal Ethics", American Philosophical Quarterly 22, 1, Jan 1985, pp 13-24.

18. J. Rachels, "Do Animals Have a Right to Liberty?", in T. Regan and P. Singer, Animal Rights and Human Obligations (New Jersey: Prentice-Hall, 1976).

D. Jamieson, "Against Zoos", in P. Singer, In Defence of Animals (Oxford: Blackwell, 1985).

M. Midgley, "Keeping Species on Ice", in V. McKenna et al, Beyond the Bars (Wellingborough: Thorsons, 1987).

19. "muddled defence": Jamieson, p113; "moral presumption": ibid, p109.

20. Jamieson's general argument is extremely clear and well supported, and is the sort of criticism which zoos need to take very seriously. I shall frequently refer to it.

21. A point well put by Cherfas at the end of his recent study of zoos (op. cit., p239).

22. P. Singer, Practical Ethics (Cambridge: C.U.P., 1979), p59.

23. P. Batten, Living Trophies (New York: Cowell, 1976).
B. Jordan and S. Ormrod, The Last Great Wild Beast Show (London: Constable, 1978). Pp13-15 make clear that they are not against zoos in principle.
R. North, The Animals Report (Harmondsworth: Penguin, 1983), pp98-111.

24. See G. Adamson, Bwana Game, The Life Story of George Adamson (London: Fontana/Collins, 1969), pp235-249, for an account of the filming of Born Free with the actors Virginia McKenna and Bill Travers in 1964, an interesting and moving prelude to their founding in 1983 of Zoo Check. See also V. McKenna, Some of My Friends Have Tails (London: Fontana/Collins, 1971) for an account of their film-making in Kenya with a young elephant whose problems and death at London Zoo in October 1983 (see Cherfas, op cit, p121) set their founding of Zoo Check in motion.

25. D.G.M. Woodgush, Elements of Ethology (London: Chapman & Hall, 1983), pp 188-200.
D. Woodgush, A. Stolba and C. Miller, "Exploration in Farm Animals and Animal Husbandry", in J. Archer and L. Birke, Exploration in animals and humans (Wokingham: Van Nostrand Reinhold, 1983), pp198-209.
F. Huntingford, The Study of Animal Behaviour (London: Chapman and Hall, 1984), p347.

26. I shall try to take to heart these words by W.H. Mallock, "no one is fit to encounter an adversary's case successfully unless he can make it for the moment his own, unless he can put it more forcibly than the adversary could put it for himself, and take account not only of what the adversary says, but also of the best he might say, if only he had chanced to think of it" (quoted by A.R. Vidler in his introduction to Objections to Christian Belief (Harmondsworth: Penguin, 1965), p7).

27. 2 ("not important") is a view taken by some scientists such as R.J. White ("A Defense of Vivisection", in Regan and Singer, op. cit.), and by some philosophers such as Geach and Frey (see 5.2.2, Right not to be hurt, below). It is not a defence anybody involved with animals is likely to use, but if anyone is inclined to, I hope to dissuade him in chapters 4 and 5.

28. 3 ("Not your business") is the defence of Newfoundland seal hunters and the South African Government among many others (including Britain when challenged on Northern Ireland by, say, Libyans). As far as animals are concerned, chapters 4 and 5 will try to show why what other people do to animals should, sometimes, be our business.

29. I think that Lord Zuckerman is using this argument somewhat unfairly against Jordan and Ormrod (authors of The Last Great Wild Beast Show) in implying, at the start of Great Zoos of the World, that one needs experience direcing a major zoo to be in a position to criticise (i.e. major zoos) (Zuckerman, op. cit.). Jordan

and Ormrod do both have considerable zoo experience; surely one can reply to their criticisms, or accept them, without regarding them as invalid because the authors are not actually active or retired directors of major zoos.

The "technical matter" defence becomes mere smoke screening in the hands of Ashley, a lively defender of factory farming: Peter Ashley, "No room for sentiment down on the intensive farm", The Guardian, 23 March 1981: "...worthy Guardian readers, ...as you ...mouth your disgust at 'modern' farming methods, let me tell you that you do not know, or understand, what you are talking about". Ashley returned to the defence in "Keep off our green and pleasant land", The Guardian, 5 May 1986.

Chapter 2

A HISTORY OF ZOOS

Keeping wild animals, though an extremely ancient practise, is recent by comparison with man's domestication of certain familiar species, the probable earliest dates of which are worth noting to emphasise how long man has been involved with animals (1). Wolves were probably domesticated (as dogs) as early as 10,000 BC, sheep and goats by 7000 BC (2) and cattle and pigs during or after the next millenium. A few animals familiar in zoos were early domesticated and have long been extinct as wild animals. These include llamas and alpacas which may have been domesticated as early as 5000 BC. Wild Arabian camels have been long extinct also, and possibly the few remaining wild Bactrian camels are feral. Both were early domesticated, Bactrians in 2600 BC (3). Elephants too, though never strictly domesticated (births in captivity have always been rare), may have been tamed as early as 2000 BC (4). Horses were probably not domesticated until the second millenium BC (5).

If the essence of a zoo is the keeping of relatively wild animals for other than the mundane purposes of

feeding or clothing humans, there are several examples of ancient zoos. The earliest recorded seem to be "breeding farms" of various cattle and antelopes around 2500 BC near Saqqara in Egypt, their details recorded on tombs, one farm with such large herds as to suggest domestication as the aim (6) (which, if so, was an aim shared with the embryo Zoological Society of London nearly 4500 years later in 1824 (7)). However the first recorded zoo containing animals such as lions is probably the royal menagerie of King Shilgai of the 3rd Dynasty of Ur, about 2000 BC, near Nippur in Mesopotamia. It has been suggested that dangerous predators will have been kept in pits, and later in stone buildings "viewed through small barred hatches" (8). Evidence of royal zoos about 700 years later in both Assyria and Babylon is apparently provided by known "correspondence" about animal deliveries between Assur-Uballit I of Assyria and Pharaoh Amenophis IV, and Burnaburiash of Babylon and Pharaohs Amenophis III and Amenophis IV. Tiglathpileser I of Assyria, about 1100 BC, received as gifts or as tribute many great beasts from fellow rulers, including it seems monkeys, crocodiles and a hippopotamus from Rameses IX of Egypt (9).

Egypt's own involvement with many wild animals was long continuing, with lions kept at temples such as that of Ammon at Karnak, about 1550 BC (10), as well as in, it may be assumed, royal menageries (11). A great expedition of Queen Hatshepsut, apparently about 1490 BC, to Somalia, is recorded on reliefs at the temple at Deir el-Bahri, and

brought back monkeys, lions, leopards, a giraffe and birds (12). In Egypt animals were not only kept; many (like the lions at Karnak), were regarded as sacred (ibises, hawks, cats, dogs, weasels, even crocodiles) and sometimes embalmed on death, as recorded by Herodotus (13). At Thebes there were some thirteen sacred animals including (apparently) a tamed crocodile (14). The largest ancient zoo was founded at Alexandria by Ptolemy II Philadelphus in the 3rd century BC (15). His father Ptolemy I was a relation and one of the generals of Alexander the Great, and it is often supposed that it was animals sent back by Alexander to a zoo in Greece which his former tutor, Aristotle, was able to study for his History of Animals. There is unfortunately, so far as I know, no substantiation for this attractive notion of a scientifically useful early zoo, but at least it seems that animals such as monkeys and birds were kept by the Greeks humanely both as pets and in city menageries (16), and also by the Romans, who apparently could be "as fond as other people of keeping animals as pets, or of just looking at them, without enjoyment of their agonies or of human agony" (17).

The first exotic animal spectacle recorded at Rome was the appearance in a triumph of four elephants captured from Pyrrhus, who was defeated in 275 BC. Twenty-four years later more than a hundred elephants captured from the Carthaginians were similarly brought to Rome. Significantly, the elephants' mahouts "passed into the

Roman service" (18). It is known that an ostrich (admired for its speed) had been exhibited at the Games by about 200 BC (19). In the 2nd century BC Rome's power in northern Africa enabled nobles to display African animals in large numbers, and the enclosed "hunting" of these captive beasts was no doubt all a demonstration of imperial domination, though the original hunting or baiting of (Italian) wild animals in the Circuses was probably partly a religious rite (20). Pompey's great shows in 55 BC are notable for including not only the slaughter of twenty elephants but for having called forth disgust from the spectators at such treatment of animals who so impressed the crowd by their brave defence of themselves as to seem (so Cicero wrote in a letter) "somehow allied to man" (21). The appalling animal slaughter (Augustus recorded 3500 African animals, mostly lions and leopards, killed in his twenty-six "venationes" (22)) was to continue into the 1st century AD under, for example, Caligula and Nero. It does seem to me, though, that by then the appalling treatment of animals was equalled or exceeded by the way these surely psychopathic emperors behaved to people, even their own relations, at least as recounted by Suetonius (who I am told may have been biased) (23). There were also performing animals - Suetonius speaks of a knight riding an elephant down a tightrope, which sounds an unlikely achievement - and considerable animal management and handling skills must have been developed (24). I comment below on the enormous

environmental damage done by the centuries of Roman animal massacres (25).

In medieval and later Europe large exotic beasts tended to be the property of kings (and were often gifts from one monarch to another (26)), who kept them either in menageries or deerparks. The British royal menagerie at Woodstock (set up by the Norman kings) was transferred to the Tower of London by Henry III in 1252 after the receipt of three leopards from the emperor Frederick II (a remarkable naturalist who laid out a marshy area with ponds for waterfowl, and wrote a scholarly treatise on hawking) (27). The Tower zoo continued for nearly six centuries. Though one of its first animals, a "white bear", apparently swam in the Thames, most animals were presumably kept in bare, uninteresting cages. The conditions were criticised in the 18th century (28). On the other hand, a leopard at the Tower was admired in 1720 for her beauty and what sounds like relaxed behaviour and a lioness there in the early 19th century was remarkably tame (29). Animals there and in other menageries were often kept singly. Apes or monkeys might be kept in palaces, but were often chained (30). On the other hand, royal deer in deerparks, and not just deer (31), had freedom to roam, enjoy normal social relations and breed, though there was the penalty of being on occasion hunted. Some animals such as the Chillingham wild cattle and the swans at Abbotsbury, though kept in extensive areas, were not there to be hunted (32). By contrast, animal-baiting

was an amusement of high and low. James I was fond of lion-baitings, and the ordinary Londoner could amuse himself at a bear garden described by Aubrey (33). Henry III of France (in 1583) and Augustus II, Elector of Dresden, (in 1719) invoked the spirit of Nero to the extent of slaughtering, more or less on impulse, their entire animal collections, but such behaviour is hardly typical in view of the large number of rulers who kept animals (34).

There were zoos and deerparks also in parts of the world far from Britain and Europe. Marco Polo described in 1298 the parks surrounding Khan-balik (one of many palaces of Kubilai Khan, and I imagine the inspiration of Coleridge's Xanadu), with a "great variety of game, such as white harts, musk-deer, roebuck, stags, squirrels, and many other beautiful animals", as well as fish and waterfowl (35). Kubilai Khan hunted not only with cheetahs but with caracals and tigers, referred to by Marco Polo as "striped lions", suggesting that tigers were unknown in Europe at that date (36). Deer parks and zoos in China had, even then, a two thousand year history (37), and at least one species of deer, the sse-pu-hsiang (the later Pere David's Deer) was apparently conserved in a deerpark for nearly three thousand years (then to be saved from extinction a second time by the Duke of Bedford). One zoo, Montezuma's, is known from a civilisation independent of the old world, Mexico. Its birds of prey (to feed which five hundred turkeys were killed daily), waterbirds on ten

ponds (maintained by three hundred keepers), rattlesnakes and "two sorts of lion" (puma and jaguar - there was also a third kind of cat, possibly now extinct) enabled Castillo, a companion of Cortes, to send back to Spain an account of much of central American wildlife (38). Some zoos apparently more public as well as more humane than any in Europe until modern times were set up in India by the enlightened Mogul emperor Akbar (39).

European zoos in the period 1500 to 1800, if not rivalling the best oriental ones, had in certain cases some scientific and educational functions. Probably the oldest still continuing zoo was the Bear Pit in Berne, Switzerland (founded 1513). The Versailles zoo was opened to scholars and the public in the second half of the 17th century, and members of the French Academy dissected specimens from it (starting in 1669), a beaver first and later an elephant. The great naturalist Buffon was (c 1739) director of the Jardin du Roi. A famous travelling menagerie, Pidcock's, was in operation from 1708 (40), and since long before then, perhaps the 12th century or so, fairs were visited by performers with Barbary apes and bears, both of which seem to have been trained in medieval, as in Roman times, to perform a surprising range of accomplishments from dancing to playing flutes (41). Pidcock's home base was at Exeter Exchange in London, where it continued until about 1840. Its confined conditions are contemporarily described by Thomas Hood:

To look around upon this brute-bastille,

> And see the king of creatures in - a safe!
> The desert's denizen in one small den,
> Swallowing slavery's most bitter pills -
> A bear in bars unbearable. And then
> The fretful porcupine, with all its quills
> Imprison'd in a pen!
> A tiger limited to four feet ten; (42)

But some of the animals were treated with a kind of consideration for their particular tastes, and were well-known characters of the time, for example a mandrill called Jerry who "had his own rocking chair, drank gin by the tumbler, smoked church-wardens and was twice presented at Court" (43). The need in zookeeping for a professionalism so wide-ranging as to be almost unattainable is demonstrated in a horrific episode at the 'Change when an elephant called Clunie had to be killed and even a file of musketeers had great difficulty in doing so. The distinguished anatomist Richard Owen complained of the primate accommodation at London Zoo saying that the Exchange monkeys were looked after better (44). Wombwell's was a travelling menagerie which became Bostock and Wombwell's in about 1825, and continued until 1931. That some of its animals were kept in small, featureless cages is shown in photographs (e.g. of lions and of a hippopotamus in Newcastle as late as 1930 (45). But many animals including lions were probably very tame and had a close relationship with their keepers (notwithstanding Wombwell's attempt to stage a lion fight in 1825), and such animals as elephants and camels obtained exercise and therapeutic activity from being performing and working animals (46). Such menageries' educational role

in simply exhibiting animals impossible to see otherwise before the film and television age is illustrated by the royal reception (one of several through the years) given to Bostock and Wombwell's on a visit to Windsor Castle in 1854 when not only the court and all the royal employees but the masters and boys of Eton attended as well (47).

London Zoo has a special importance in having been founded as a scientific institution and a continuing worldwide importance not least from its 150 year experience. (See account later in chapter 14.) It was London Zoo that gave the term "zoo" to the world, ironically, for such a serious scientific institution, known to all as the Zoological Gardens until a music hall song made the title "zoo" unavoidable (48). Not that its scientific role as perceived by its founders was necessarily one we would regard now as either scientific or desirable: "the introduction of new varieties, breeds, and races of animals for the purpose of domestication or for stocking our farm-yards, woods, pleasure-grounds, and wastes with the establishment of a general Zoological Collection, consisting of prepared specimens in the different classes and orders, so as to... point out the analogies between the animals already domesticated, and those which are similar in character upon which the first experiments may be made" (49). Its conditions were not all necessarily preferable to those at ordinary menageries, as

seen above in Owen's criticism. However it had good staff, such as its superintendent for forty years, Bartlett, who came to the notice of the Society first by his taxidermic skill. Examples of his skill with the management of living animals are the way in which he lanced two abscesses on the massive African elephant Jumbo, without, clearly, losing the animal's trust, and the way in which he organised the transfer of the big cats to new accommodation (by leaving the travelling boxes waiting with food in till the animals were accustomed to them) without avoidable disturbance to animals or humans (50). Many animals too had opportunities for activity such as elephant and camel rides, llamas pulling carts, cheetahs going for walks (51), or, from the 1920's, the chimpanzees' tea party (the chimps had to be trained to misbehave (52)) and other unexpected examples of animal-human contact like that of the "wolf man" who (even if not fully approved of) was allowed to take wolves for walks and wrestle with them in the manner of an early Aspinall (see below) (53). On the other hand the cats were kept in cages without much "furniture" (no doubt a log to climb), and no escape from the public view, and which, in the early twentieth century, drew Galsworthy's bitter condemnation. Even the Mappin Terraces, an exciting new development at the zoo (inspired by Hagenbeck - see below) were criticised by Saki, surely with perfect justification (54). There was a tendency, with a long history, to provide accommodation designed by architects to please

human viewers but with little consideration of the animal occupants' requirements (55).

The founding of the Zoological Society of London was followed by other major modern zoos like Dublin and Bristol in the British Isles (1830 and 1834), Amsterdam (1838), Frankfurt (1858), Basle (1874) and Philadelphia (1874), but major advances in zoo thinking came from a remarkable German animal trainer and trader, Carl Hagenbeck. He showed that tropical animals like lions could acclimatise successfully to temperate conditions, and founded his own zoo at Hamburg with moated rather than barred enclosures, and with carnivores and herbivores apparently exhibited (i.e. to the public) in the same enclosures, in fact separated by hidden moats (56). Hagenbeck also introduced new humane training methods which relied on careful selection of individual animals amenable to training and positive reinforcement of items of behaviour already shown, and outlawed cruel training methods (the existence of which Hagenbeck confirms, though he regarded them as ineffective as well as dangerous compared to his own humane methods) (57). German zoos have continued to have a much higher regard for animal training, even when taken to the length of circus performing, than do British zoos, and its occupational and therapeutic possibilities are stressed by Hediger (58).

Hagenbeck's success was founded on his great animal collecting and trading business. Clearly he was a superb organiser. But his business success in this field does not

alter the status of such collecting as morally highly questionable, perhaps (even at that time) on conservational grounds, certainly on humane grounds. The Romans' greed for animals did, apart from humane considerations, massive environmental damage to north Africa. This was not for zoos, of course, and it is doubtful whether any collecting for zoos as such has ever been a serious factor in environmental damage. But in terms of animal welfare, animal collecting through the centuries, whether for zoos or not, must have caused enormous suffering, and even Hagenbeck accepted the need, for example, to kill accompanying adults when young elephants were captured, and, worse, allowed local tribesmen who were assisting him to use their own, cruel methods (59).

However, Hagenbeck's innovations in zoo design were unquestionable. Edinburgh (1909) was designed in the light of them. Chalmers Mitchell, Secretary of the ZSL, demonstrated animal losses through lack of fresh air, took steps to allow many animals previously protected from the London climate access to it, and thus greatly extended zoo life expectancies. He also built the Mappin Terraces (inspired by Hagenbeck) (see above). There were other far-sighted attempts to improve how animals were kept, such as Baboon Rock, even though disaster broke out because of the number of males to females being far too high (60), and, especially, the foundation of Whipsnade in 1931, on an area of 500 acres in rolling Bedfordshire

downs, with many extremely large and attractive enclosures (61). Other major zoos that also run large animal parks, often intentionally closed to the public to safeguard undisturbed breeding, include New York, San Diego, Melbourne, Bristol and now Edinburgh. London's scientific pre-eminence was maintained following the last war by the foundation of two research institutes in comparative medicine and reproductive physiology, now combined as the Institute of Zoology.

In America and Europe and elsewhere, though not in Britain, national or civic zoos have been founded and, thanks to a degree of financial support granted in Britain to museums but never to zoos, not even London, have been able to mount large, naturalistic displays like the enormous aviary at the Bronx, New York, a model Antarctic setting at San Diego with real snow and purified air, an African display at Chicago with convincing rain forest and tropical rainstorms, a chimpanzee enclosure at Sydney, a chimpanzee island at Arnhem, and a polar bear display at Tacoma (62). Three American zoos, New York, Washington and San Diego, are outstanding in their scientific research, work of very diverse kinds (63).

British zoos in the 20th century, while not rivalling the best abroad at least in elaborate displays, nevertheless include some fine and individually-minded institutions dedicated, especially in the last twenty-five years, to the captive breeding of endangered species. The example here was set by the Duke of Bedford who, in the

early years of the century, single-handedly saved the Pere David's Deer from extinction by releasing the few animals he had managed to acquire into an idyllic area at Woburn where they bred very successfully (unknown to an at that time uncomprehending zoo world) (64). Chester (1936) has developed into a very large and attractive zoo under very professional management. Since the last war new zoos of special importance have included Jersey, almost uniquely dedicated to conservational captive breeding and seriously and scientifically operated to this end, Twycross, specialising with considerable success in primates, the Woolly Monkey Sanctuary at Looe, Cornwall, a demonstration of how one primate species imaginatively and humanely kept can be not only of scientific interest but commercially successful, Marwell, seriously and successfully specialising in endangered ungulates and cats, and Howletts and Port Limpne, together keeping and breeding gorillas, large cats and ungulates, with a concentrated aim and in exceptionally humane and attractive conditions (65). Other specialist institutions of real importance are Slimbridge, the first of many reserves of the Wildfowl Trust, the Norfolk Wildlife Park and the Otter Trust (66). A whole new variant on the long established deer park (in the old sense of "deer") was established by the first safari park at Longleat in 1966. The advantages of greater freedom for the animals have to some extent been offset by a commercial management with no real interest in the captive breeding of endangered

species and perhaps a tendency to be less concerned for the interests of the animals kept than may appear to the layman (67).

Other specialist institutions have included aquaria, dolphinaria, and, most recently, butterfly displays. Despite, in general, some exceptionally fine zoos and animal parks, there have also continued to be many with much lower standards. This is even more so abroad, not least in America (68).

Whatever failings still continue, and these are bound to in activities practised by hundreds of institutions around the world, and receiving, in a year, perhaps the colossal total of 357 million or so visitors (69), a new professionalism and seriousness of aim has become apparent in the zoo world in the last quarter of a century. The Federation of Zoos in Britain was set up in 1966 to raise standards, and, to this end, introduced compulsory inspections for its members. A disparity of aims and approaches in British zoos succeeded in preventing the passing of zoo legislation, which the Federation was working for at least from the early 1970's, until the 1980's (70). The International Zoo Year Books (begun by the Zoological Society of London (ZSL) in 1959), regular international conferences on captive breeding for conservation, the introduction of the International Species Inventory System (ISIS) in the mid-70s in America (now being followed by ARKS in Britain (70)), the development of inter-zoo management committees for, for

example, anthropoid apes, all bespeak a new concern for captive breeding. Similarly, a voluntary decision by the American Association of Zoological Parks and Aquariums in 1962 to control responsibily their own traffic in endangered species (72), the involvement of zoo authorities in CITES (73), and the emphasis of the Federation on the importance of co-operation with such measures, has utterly changed, if not before time, the former tendency of zoos to regard the wild as a bottomless purse from which to replace the animals they kept.

NOTES TO CHAPTER 2

1. Man has been involved with animals incalculably longer, if we count his history as a predator, which may predate his humanity. For the hypothesis that man's social behaviour has been partly formed by his hunting tendencies, see Carveth Read, The Origin of Man and his Superstitions (Cambridge: CUP, 1920), discussed in A. Hardy, The Biology of God (London: Cape, 1975), p 156 ff.
2. J. Clutton-Brock, Domesticated Animals, London: Heinemann/British Museum (Natural History), 1981), p 34 (dogs); p 56 (sheep and goats).
3. Ibid, p 127 (llamas and alpacas); p 126 (camels).
4. Ibid, p 15. See J.C. Bowman Animals for Man (London: Arnold, 1977), p 26 for domestication's usually including control of the reproductive process.
5. Clutton-Brock, op. cit., p 80.
6. Sheldon Campbell, Lifeboats to Ararat (London: Weidenfeld and Nicolson, 1979), p 39.
7. L. Harrison Matthews, "The Zoo: 150 years of research", Nature Vol 261, No 5558, 27 May 1976, p 281.
8. Hermann Dembeck, Animals and Men (London: Nelson, 1966), p 269.
9. Ibid, p 270.
10. Gustave Loisel, Histoire des Menageries de l'Antiquite a nos Jours (Paris: Octave Doin et Fils and Henri Laurens, 1912), Vol I, p 11.
11. Dembeck, op. cit., p 271.
12. Loisel, op. cit., Vol I, p 125; M. Cary and E.H. Warmington, The Ancient Explorers (Harmondsworth: Penguin, 1963), pp 75-76.

13. Herodotus, The Histories (Harmondsworth: Penguin, 1954), pp 127-130; see also F. Klingender, Animals in art and thought to the end of the Middle Ages (London: Routledge and Kegan Paul, 1971), p 32.
14. Ibid, p 129; Loisel, op. cit., p 13.
15. H.H. Scullard, The Elephant in the Greek and Roman World (London: Thames and Hudson, 1974), p 133.
16. B. Jordan and S. Ormrod, The Last Great Wild Beast Show (London: Constable, 1978), p 23; Dumbeck, op. cit., p 273.
17. George Jennison, Animals for Show and Pleasure in Ancient Rome (Manchester Univerity Press, 1937), p 1.
18. Jennison, op. cit., p 44.
19. Ibid.
20. Ibid, pp 46 and 42.
21. Ibid, p 52; also recounted by Campbell, op. cit., p 41.
22. Jennison, op. cit., p 45.
23. Suetonius, The Twelve Caesars, (Harmondsworth: Penguin, 1957), p 214 ff.
24. Ibid; Scullard, op. cit., pp 252-253.
25. On which see David Attenborough, The First Eden (London: Collins/BBC, 1987), pp 111-118.
26. There are plenty of modern examples, such as a gift of two bears to President Herzog of Israel on his visit to Berne in Switzerland (The Independent, 4 April 1987).
27. [E.T. Bennett], The Tower Menagerie (London: Robert Jennings, 1829), p xiii ff; Loisel, op. cit., Vol. I, p 155.
28. Ibid, p xiv; R.A. Marchant, Man and Beast (New York: Macmillan, 1968), p 83.
29. K. Thomas, Man and the Natural World (Harmondsworth: Penguin, 1984), p 277, on admiration for a leopard and also popular appreciation of the lions; Bennett, op. cit., p 9, on the tameness of the lion.
30. H.W. Janson, Apes and Ape Love in the Middle Ages and the Renaissance (London: Warburg Institute, University of London, 1952), 145; D. and R. Morris, Men and Apes (London: Sphere, 1968), p 72; Alain Erlande-Brandenburg, La Dame a la Licorne (Paris: Les Editions de la Reunion des Musees Nationaux, 1978) shows, on 15th century tapestries, a collared monkey chained to a small roller, as well as several other collared animals.
31. At least if it is correct to assume that a deerpark meant originally an animal park, as one would expect from the fact that, as Sheldon Campbell reminds us (op. cit., p 72), until 1490 or so "deer" meant "animal" (Shorter Oxford Dict.). Cf King Lear III 4 132-3: "mice and rats and such small deer...", and the modern German Tierpark ("deer" and "Tier" being cognate).
32. Thomas, op. cit., p 276.
33. O.L. Dick (ed), Aubrey's Brief Lives (Harmondsworth: Penguin, 1962), p 70, Editor's Introduction, quoting from John Aubrey, The perambulation of the County of Surrey 1673-1674 (c

1719): "On the Bank Side were two Bear Gardens, the Old and the New, wherein Bears, Bulls, Otters, &c. were kept to be baited by Dogs bred to that Sport, for the Diversion of the Spectators, the Destruction of the innocent Creatures, and the Gratification of a barbarous and savage Temper, which never more displays itself than in shewing a Complacency and Delight in these cruel Spectacles."

34. Campbell, op. cit., p 45; Jamieson, op. cit. (chapter 1), p 10.

35. Marco Polo, The Travels (Harmondsworth: Penguin, 1958), p 126.

36. H. Wendt, Out of Noah's Ark (London: Weidenfeld and Nicolson, undated but c. 1959), pp 59-60.

37. Loisel, op. cit., Vol I, p 37.

38. Wendt, op. cit., pp 169-171; Jordan and Ormrod (op. cit., p 27) comment strikingly on the remarkable proof Montezuma's zoo provides of the development of the "'zoo' concept" within wholly independent cultures.

39. Ibid, pp 29-30.

40. Marchant, op. cit., pp 82, 84.

41. Morris, op. cit., pp 71-72. The performing by Barbary apes is particularly surprising in view of the fact that, as Morris tells us, they seem very unamenable to training.

42. Lines from Thomas Hood, The Monkey-Martyr, in G. MacBeth (ed), The Penguin Book of Animal Verse (Harmondsworth: 1965), p 206. See also Hood's Remonstratory Ode, from the elephant at Exeter Change, to Mr Mathews, at the English Opera-House, in MacBeth, op. cit., p 101.

43. L.R. Brightwell, The Zoo Story (London: Museum Press, 1952), p 19.

44. Marchant, op. cit., pp 82-83, concerning the elephant Clunie; W. Blunt, The Ark in the Park: the Zoo in the Nineteenth Century (London: Hamish Hamilton, 1976), p 40, concerning the complaint, written in the Zoological Magazine, 1833, presumably anonymously but assumed to be by Owen.

45. J.L. Middlemiss, A Zoo on Wheels, Bostock and Wombwell's Menagerie (Burton-on-Trent: Dalebrook, 1987): e.g. photographs of caged hippopotamus and caged lions, dated 1931, pp 44 and 45.

46. Ibid, p 16: photograph of ticket for the "Great Lion Fight" at Warwick, 26 July 1825, "Gal. Ticket, One Guinea"; pp 50 and 51: camels and elephants working.

47. Ibid, pp 10-11.

48. Brightwell, op. cit., p 97. What was always "the Zoological Gardens" became "the Zoo" one night in 1867 when the Great Vance sung:

> Weekdays may do for cads, but not for me or you,
> So dressed right down the street, we show them who is who.
> ....The O.K. thing on Sundays is the walking in the zoo.

(The term had been used earlier of the Clifton Zoo in Bristol.)

49. Matthews, op. cit., pp 281-282.
50. Philip Street, Animals in Captivity (London: Faber and Faber, 1965), pp 63-66.
51. E.g. L.R. Brightwell, Zoo Calendar (London: Hutchinson, n.d.), p 101: illustration "An early morning 'Zoo-scape' in June", with camel, llamas, elephant, cheetah all being walked.
52. Morris, op. cit., p 68.
53. J. Alldis, Animals as Friends (Newton Abbott: David and Charles, 1973), pp 68-69; Brightwell, op. cit., pp 20-21.
54. See chapter 1, note 1.
55. David Tomlinson, "Crisis at London Zoo", Country Life, 19 June 1986, pp 1734-1736.
56. Street, op. cit., pp 32-37.
57. Ibid, p 37 ff.
58. H. Hediger, The Psychology and Behaviour of Animals in Zoos and Circuses (New York: Dover, 1968), pp 117-132; H. Hediger, Wild Animals in Captivity (New York: Dover, 1964), pp 158-161.
59. S. Campbell, Lifeboats to Ararat (London: Weidenfeld and Nicolson, 1979), pp 47-49.
60. Originally it had been intended to have only male baboons in the enclosure, Street, op. cit., p 75.
61. Ibid, p 78 ff.
62. See J. Cherfas, Zoo 2000 (London: BBC, 1984).
63. Campbell, op. cit., p 162 ff.
64. Wendt, op. cit., pp 352-358.
65. Durrell, op. cit., (chapter 1); Hahn, op. cit. (chapter 1), pp 283-286 (on Twycross); Leonard Williams, Monkeys and the social Instinct, An inter-living study from The Woolly Monkey Sanctuary (Looe: Monkey Sanctuary Publications, 1974); John Aspinall, The Best of Friends (London: Macmillan, 1976).
66. Philip Wayre, The Private Life of the Otter (London: Batsford, 1979).
67. For praise of safari parks, see Smith, op. cit. (chapter 1), p ix ff; for a more critical view, see Jordan and Ormrod, op. cit., pp 152-157.
68. Jordan and Ormrod, op. cit., for strong criticism of many British zoos, and Batten, op. cit. (chapter 1), for the failures of many American zoos.
69. J. Cherfas, op. cit. (chapter 1), p 11; see also J. Fisher, Zoos of the World (London: Aldus, 1966), p 3.
70. See Durrell, op. cit. (chapter 1), pp 148-149.
71. ARKS stands for "Animal Records Keeping System": see chapter 13.
72. Campbell, op. cit., p 37.
73. CITES: Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora (1975).

Chapter 3

THREE CONCEPTS CONSIDERED

3.1 WILDNESS

I am concerned in this section to some extent with the actual nature of wild animals, but mainly with the conflicting attitudes towards them that our concept of "wild" or "wildness" seems to embody, and of which we should be aware.

The most obvious characteristic of a wild animal is, traditionally, its being dangerous or fierce. This can of course be the case. To meet a tiger face to face could be a terrifying experience, though opinions on how actually dangerous it might be differ (1). Wild animals are often not dangerous, or nervous or afraid of us either. Animals on islands without natural predators often show no fear of man (2), which reminds us that those wild animals which are dangerous or ferocious are such because they need to be. Ferocity has not evolved where not needed. Ferocity is an adaptation to their way of life and habitat.

As well as being afraid, reasonably enough, of dangerous animals, we admire them - especially predators - for being dangerous. We are impressed by them, as in Blake's Tyger. Lions, tigers and eagles are the favourite

emblems of kings and states today as ever.

We also not only admire fierce animals, not only are sometimes afraid of them, but also sometimes, with marvellous inconsistency, blame them for being fierce or dangerous. We imply blame when we use a word such as "vicious" of, say, sharks or crocodiles, to take examples of Mary Midgleys's (3). North gives an example from vintage Attenborough of a caiman's "long evil head... glaring at us malevolently..." (4). We use the term "brute" or "vicious brute" or "wild animal" of an unreasonably violent human, implying that violent behaviour is characteristic of animals, wild animals no doubt in particular. We tend to be critical of an animal for being fierce when we should know full-well both that it needs to be and that it in any case can not help it.

(I could add that it is foolish to blame animals for fierceness, etc when we usually accept that they are not capable of moral judgements. But I want to leave this point aside, partly because I do not think moral terms of praise or blame are entirely inapplicable to all non-human animals (see chapter 4), and also because it seems strange to imply that we should excuse a lion from eating a zebra, or a domestic cat from catching a sparrow, on the grounds that they are incapable of behaving morally. Even if they had developed language as one primate species has done, had become rational (as the term is often used), they would still, for simple biological reasons, have had to go on catching zebras or birds. (Perhaps they would have

farmed their prey and killed them en bloc in slaughter houses).)

This popular sense of "wild" is of course a hangover from the past. Any blame felt towards a wild animal for being fierce was never justifiable, but is even less so now because of how much more we know about various wild animals. Thinking of wolves in the way they must have been by those who treated them with appalling cruelty in mediaeval France (5) would be even less justified now when so much more is known of wolves' admirable private lives (6).

Another synonym for wild is "untamed". Again we are perfectly capable of admiring an animal for being untamed. "Well-named, it is the real untamed and untameable savage...", as Millais said of the European wildcat (7), and as an animal might have been described outside an old fashioned fair sideshow to bring in the crowds. Conversely, "tame" is often used to mean "dull" or "uninteresting". But at the same time we can use "untamed" with the implication that the wild animal is in a rather reprehensible state, and presumably therefore could do with being removed from it, with being tamed. Southey caught this sense well, in these words (addressed to a dancing bear):

> Besides
> 'Tis wholesome for thy morals to be brought
> From savage climes into a civilised state,
> Into the decencies of Christendom. (8)

Another sense of "wild" is "disordered, chaotic,

structureless". We can admire this too, as in an expression like "Let's have a wild party", but we might also use the word disapprovingly of the behaviour of a child showing tantrums or getting too excited. Presumably the word would have been used in this sense in "wild men", a sense which now seems antiquated because we appreciate that it is inaccurate to speak of primitive people as wild or as savages because they in fact have organised societies, rules to obey, mythologies, cultures, indeed a degree of civilisation (9).

We now appreciate how, to a considerable extent, this is true of animals also. Lions, elephants, primates, for example, all have their structured societies, and we appreciate how these, and an animal's ways of behaving towards its fellows, are themselves part of an animal species' adaptations to its way of life and habitat. Just as we would feel it wrong, as the European slavers did not, or as Captain Fitzroy of the Beagle did not, to drag a person out of his society and culture, we would now be perfectly right, I think, to wonder genuinely if we can be justified in removing an animal from the wild - i.e. from the environment, and even in some cases and in some degree, from the society and the culture - in which it naturally lives.

We clearly do have conflicting attitudes to those we call "wild". The term "wild animals", or even more "wild beasts", still tends to carry the suggestions of "uncontrolled, dangerous, and unlike properly domesticated

animals". On the other hand, "wildlife" carries all the positive and modern - and romantic - suggestions of "wild": animals (or plants presumably) living their natural, proper, uninterfered-with lives. This is not, by the way, a new sense; we get it in the seventeenth century, for example in Milton's lines in L'Allegro:

> "..Or sweetest Shakespear fancies childe,
> Warble his native Wood-notes wilde;"

One might think it was obvious that animals in the wild were living in a state of freedom, but this has often been denied. It is this matter that I turn to now.

3.2 FREEDOM

A claim sometimes made about zoo animals is that they are not really unfree in captivity because they would not be really free in the wild state. It may be added that freedom is something which animals can not appreciate and do not care about. I want to challenge the common assumption that a clear line can be drawn between humans and other animals in regard to their experience of or capacity for "freedom".

The claim that animals are not truly free in the wild is made by Hediger in some detail. Wild animals are not as, he says, everyone once fondly imagined, free to wander where they will: they have, usually, a restricted range,

within this a habitat (or biochore) and within this a biotope or niche. In addition the individual, pair or social unit has a territory (10). Possibly he also sees as limiting a freeliving animal's freedom such factors as its biological rank and social rank (11). This claim is also made by Hindle in his introduction to Hediger's book, and by numerous other writers (12).

Is it true that people used to think wild animals were free in the sense of going wherever and doing whatever they liked? Perhaps they did, as Mary Midgley suggests (13). Hediger speaks of it as the "traditional idea" but adds that "as early as 1909" Seton realised it wasn't so (14). I should have thought that, as people knew they themselves were not free to go where they liked, and certainly knew they were not free to treat everyone as equals, but had to show respect to certain superiors, they would be likely to assume that animals were similarly restricted. Certainly the idea of order extending to animals is not new. The Elizabethan, medieval and originally Aristotelian idea of cosmic order involved all living things. All had a place, a rank. Indeed Hediger's examples of "biological rank" - e.g. between mountain eagle, raven and jackdaw - are reminiscent of Elizabethan (and presumably earlier) ideas of ranks among animals: e.g. the eagle among birds (15).

Was it not obvious that animals had to make their way in the world: that they had to find food, usually had to have homes (as in the New Testament: "the birds of the air

have nests..."), had to avoid enemies and being eaten? So animals could not have been "wholly" free, free to do whatever they liked.

However, whatever people used to think about how animals lived, it is true that we now know animals to have territories, rules of behaviour, complicated relations to their fellows, and so on. But this need not be taken to imply, I suggest, that freeliving animals are not free. First, it is clear that freedom must have various degrees; it is not an absolute, all-or-nothing affair, and in particular does not have to be absolute to be worth calling freedom. None of us is absolutely free - we have to pay taxes and rates, earn our living, buy our clothes, and so on - but we still regard ourselves as free, relative to the Russians perhaps, and we regard such freedom as we have as worth caring about. Recognising we have to be restricted in some degree does not mean that we could not be restricted too much, or that it would not matter if we were.

Furthermore, it is not even merely impracticable for the state, say, to allow us complete freedom. It is not just that we could not all be wholly free because our freedoms would, as it were, overlap or trespass upon each other, though of course this is so. It is that to have complete freedom would be to have a state of disorder and chaos. We make rules for ourselves for our own interests, indeed for our own sanity. So we want freedom but not literally complete freedom (if indeed "complete freedom"

has any meaning).

Some people feel they are not free because of having been conditioned by their society into behaving in a particular kind of way, but do not we have to be a part of some society? Do not we have to have certain rules or ways of behaving rather than others, to be able to do anything at all (16)? At any rate, certain rules and conventions enable us to do things we could not do otherwise. Rules seem necessary for freedom, just as rules and limitations within which we operate are necessary for sports and games and for artistic creation. So, far from it being the case that animals are not truly free because their freedom is limited, it seems to me that their freedom, just like humans' freedom, could not possibly not be limited. Their freedom (in varying degrees) may well be more limited than human freedom, but this is a matter of degree, not of qualitative difference. No doubt a very big quantitative difference amounts to a qualitative one, and humans' freedom includes things like being able to decide to change their way of life, or make long-term decisions about the life they will need, in ways that animals no doubt can not. But we are not always involved with such radical or long-term decisions. Much of the time we are all merely following in our day to day routine, where choice is hardly involved, or making minor decisions such as animals to some extent can (and have to) make too: decisions such as whether to eat this or that food, whether to go to bed or stay up longer, whether to join

our fellows or do something else alone.

It might be argued that animals are not free because we can predict what they are going to do. This is, in a way, another aspect of their having structured lives, social organisations, and so on. But it seems to me right, following Flew (17), to see a person as being free provided that he is not being forced by some external power to behave in a certain way. We do not suppose that free behaviour must be uncaused. If it were, it would be chaotic, which, approaching from a different direction, we have already seen not to be what being free involves. So long as the causal factors are internal to the person concerned rather than external to him and irresistible, in the way that manipulation by a hypnotist might be, we do not see them as limiting his freedom. The more we understand the various causal factors operating, the more we may be able to predict a person's behaviour in any particular set of circumstances. The situation does not seem to be substantially different with an animal. Some of the causal factors which make an animal behave in a certain way in the wild state must be external to him, for he must respond to the circumstances he meets. This is true of humans too.

In any case, even if we neglect the question of whether a particular animal has any free choice in its normal life, or if we decide that it has not, we should still recognise that if the animal is prevented from leading that life, its freedom has been to a greater or

lesser extent removed. It has, simply, lost its freedom to live its normal life. I have already agreed that humans have a degree of freedom which it is likely no animal possesses. This kind of freedom an animal, if it does not normally have it, can not of course lose. But there is no reason why we should regard this as the only important kind of freedom. We obviously do not think it is. We clearly do regard it as very important that people should be allowed to go about their normal lives without undue interference, and especially without being made captive. And this will still apply in any particular case where we happen to have good reason to suppose the person concerned has very little control over his life, makes up his own mind very little, forms no long-term plans, and so on. So it should presumably apply also to animals.

Again, what a person chooses to do is often what it is best for him to do, and what we should therefore let him do. He may not necessarily consciously consider course A and course B and decide finally to follow course A; he just does A, without having been forced to by an outside agent. Of course, he chooses A because of the kind of person he is, and he is the kind of person he is partly because of heredity, as a result of which he will be (I suggest) to some extent adapted to a particular kind of life. Now what an animal does naturally is, similarly, what it is choosing to do. We can say that it is not free to choose a different kind of life (the cow won't take up hunting) but neither am I (Bostock) free, as it happens,

to choose a life of, say, cricket (or hunting), because, as it happens, I am not that sort of person; I have the wrong temperament and lack the ability. True, human individuals seem to vary more than do individuals of other species but this must be at least partly what has been called the "Chinese effect" (18).

I have been looking at the concept of freedom because, although I think that good animal captivity can be morally justified, I do not wish to try to establish this by using what seem to me faulty arguments. And to argue that animals can not lose their freedom in captivity because they would have no freedom anyway in the wild seems to me fallacious. Despite this conclusion about freedom, I still think that the state of captivity in a good zoo can be a state of wellbeing, and it is the concept of "captivity" that I shall look at next.

3.3 CAPTIVITY

Anything that can be called animal captivity may seem, in the eyes of anyone prepared to grant animals a minimum of consideration, to be self-condemned by the very term "captivity", surely of necessity an oppressive treatment except possibly for human criminals. I want however to see what is involved in a human's being captive, and then consider how much of this applies also to animal

captivity, and in particular to good animal captivity. It should then be possible to establish both that "captivity" is used here as a technical term without very much of the meaning and overtones which it carries in the case of human captivity, and more importantly that at least some forms of what would normally be counted as animal captivity should also be regarded as acceptable.

ASPECTS OF HUMAN CAPTIVITY

The following aspects of captivity seem important as far as human captivity is concerned:

1) A captive's movements, and to some extent other actions of his, are prevented or restricted.

2) His freedom to communicate with his family and friends or other people is restricted.

3) He is not normally able to carry on family life and/or have children.

4) While the normal means of his being kept captive is by means of prison walls, locked doors, etc, he could be kept captive without any restrictions being placed on his actual travel if he were controlled by drugs which he was forced to take, or by some sort of wiring in, or cerebral manipulation, or hypnotism, so that he was not acting freely, even though there were no bars or actual physical barriers restricting his movements. If we thought some application of indoctrination or training quite excessive, and forced upon someone against his wishes, and particularly perhaps if we considered that it

was such as to change his nature or personality, we might call this captivity.

5) The restrictions must be necessarily imposed by an outside agent. Not to be able to travel or communicate or generally live one's normal life because of physical or mental illness, or a rail strike, or living in the country, would not make one strictly captive. The effects might be the same, but it would not be real captivity just because there was no outside agent purposely restricting one's freedom.

6) Captivity is normally, or at least very often, intended to be in some degree unpleasant.

7) A state of captivity is inflicted or imposed either as punishment or, more likely, as appropriate treatment of a defeated enemy in war, or a member of a subject and perhaps (in the view of the captor) inferior race.

8) The captive will normally be aware of his state, and such awareness is part of or involved in his captivity, and it may be part of the pleasure of the captor - as in a Roman triumph, with prisoners/captives paraded.

ASPECTS OF ANIMAL CAPTIVITY

Now let us see how many of these are aspects also of good animal captivity:

1) YES, but... The movement restriction applies, and in some degree the restrictions on other actions. However, as we shall see in chapters 9 and 10, the animal ought to be kept in such a way that as many as possible of its natural

activities occur.

2) YES, but... This applies, though the animal should be able to communicate with other animals in its group in captivity, though of course not usually with others in the wild. (This could occur, e.g. in the case of swans at Slimbridge.)

3) NO, but... A main point of modern animal captivity is that breeding should occur, though it of course occurs at best less freely than it would in the wild, it often does not or can not occur, and this was very often the case in zoos historically.

4) (YES.) This does, or rather it could - i.e. we could wire up an animal so as to manipulate it through its brain (19), or use drugs, etc; more to the point, we could also change an animal just by taming it and also by training, and by selective breeding; though in this last case it would be on the animal's descendants, not on the animal itself, that the effect would be produced. The wiring up and use of drugs examples do not of course normally occur in zoos; they are merely theoretical possibilities. Taming in some degree does, as does in some cases training. It is an accepted responsibility of zoos to endeavour to avoid selective breeding, but, as I shall argue in chapter 8, I do not think a rigid distinction can be drawn between "zoo animals" (or even fully wild animals) on the one hand and domesticated animals on the other.

5) YES. The animal's situation is indeed brought about by

an outside agent, who also belongs to a different species from the captive.

6) NO. The captivity is not intended to be unpleasant, or, if it ever is, most certainly ought not to be, though in some cases it is perhaps likely to be, and expected to be. But this is mainly so only of the actual capture of a wild animal and the period ensuing until it has adjusted to captivity. Many animals are born in zoos, and capturing is in any case more difficult than mere keeping captive to justify: I shall look at it in chapter 17.

7) NO. Again, the captivity is certainly not imposed as a punishment or appropriate treatment of a defeated enemy (20). However this may have been the situation in the past, and it is possible that it could be today in some cases.

8) NO. I think it unlikely that the captive animal will be aware of being captive, or at least it should not be if its captive conditions are adequate (21), although I do not think it anthropomorphic to assume an animal is aware of being restricted in a very confined cage (such as Chaucer was presumably thinking of - see 1.1 above). (I discuss anthropomorphism in 9.5 below.) But I think many zoo staff reasonably believe many of their animals are well enough off not to escape if they could (see 9.5 below).

So at least 6)("unpleasant"), 7)("punishment") and 8)("aware"), and also 3)("breeding"), do not apply in the animal situation; 1)("movement and action") and

2)("communication") are applicable but only in some degree. 4)("technological") is a special case which I will leave out of this particular calculation. 5)("outside agent") certainly does apply to animal captivity.

4. So I suggest, at least as a preliminary conclusion, that animal captivity is substantially different from human captivity, and that we should regard the term "captivity" in connection with good zoos as a technical term. By good zoos I mean ones that are providing good conditions for their animals in the light of the fullest knowledge available of what their needs are, and this is something very different from what any human prisoner or captive would be likely to be provided with. Replacing the term "captivity", if we could think of a suitable substitute such as "keeping" or "holding" perhaps, would not be, I think, at least as far as good zoos are concerned, the mere adopting of a euphemism such as much of the use of the term "euthanasia", for example, is (so Regan convincingly argues (22)).

In my attempted analysis of the concept of captivity, I may seem to have left out the most important features - bars, concrete floors, a life of unremitting dullness, and so on. Bars, as I discuss elsewhere, are not necessarily objectionable in themselves, but seem so because of the other features with which they are so often associated. But in any case this sort of captivity, anything which can reasonably be called prison-like, I am not trying to justify or defend. The point is, I think,

that we now have ways, or at least we know now how to set about discovering ways, of keeping animals so that their real needs are fulfilled, as I will look at in chapters 9 and 10. It might be, I suppose, that some animal's need differed so much from ours that what looked like a prison to us actually fulfilled its needs very well. An actual human prison might suit mice very well. But generally speaking, if a cage or enclosure looks prison-like to us, the chances are it will also be highly unsuitable for most zoo animals, not least because, perhaps, many of the animals kept in zoos are a great deal more like us - who are, after all, primates - than is often supposed (23). A comparison of ourselves and other animals is what I turn to now.

NOTES TO CHAPTER 3

1. Delacour, describing nearly stepping on a tiger which quickly bounded away, remarks that he was in no real danger, but a recent birdwatcher in Corbett Park had a similar experience and was killed, and many people are killed by tigers annually (J. Delacour, The Living Air (London: Country Life, 1966), p 122); M. Hamlyn, "On the trail of a tiger hunter", The Times, 7 Feb 1987, p 7.
2. Hence man's ability to exterminate the dodo rapidly, and in many cases penguins which apparently fear potential predators only in water; hence also penguins' at least temperamental suitability to life in zoos and readiness to go on penguin parades close to the public as at Edinburgh Zoo.
3. M.Midgley, Beast and Man (Hassocks, Sussex: Harvester, 1979), p 33.
4. R. North, The Animals Report (Harmondsworth: Penguin, 1983), p 101, quoting from David Attenborough, Zoo Quest to Guiana.
5. Midgley, op. cit., p 27.
6. See F. Mowat, Never Cry Wolf (London: Ballantyne, 1963) and discussion in Midgley, op. cit., p 26.
7. Quoted by J. Mallinson, The Shadow of Extinction (London: Macmillan, 1978), p 137.
8. R. Southey, The Dancing Bear, in J. Wynne-Tyson, The

Extended Circle, A Dictionary of Humane Thought (Fontwell, Sussex: Centaur, 1985), p 349.

9. At least we would hesitate to speak of them as uncivilised in the confident way that Johnson did in the eighteenth century, as Midgley reminds us (op. cit., p 38): "savages are always cruel", their marriage arrangements are disorganised, and "talk of a mythology being amongst them ... must be invention."

10. H. Hediger, Wild Animals in Captivity (New York: Dover, 1964), pp 4, 6, 7.

11. Ibid, pp 22-23.

12. E. Hindle, Introduction to Hediger, op. cit., p 7.

13. Midgley, op. cit., p 289.

14. Hediger, op. cit., p 12.

15. Ibid; see also A. O. Lovejoy, The Great Chain of Being (New York: Harper and Row, 1960); E.M.W. Tillyard, The Elizabethan World Picture (Harmondsworth: Penguin, 1963), e.g. p 39 (quoting Sir John Fortescue): "..there is no worm that crawls upon the ground ...which the chain of this order does not bind in most harmonious concord."

16. Midgley, op. cit., p 286.

17. A. Flew, "Divine Omnipotence and Human Freedom" in A. Flew and A. MacIntyre (eds), New Essays in Philosophical Theology (London: SCM, 1963), p 149 ff.

18. As Patrick Bateson neatly called it in a New Scientist article: i.e. the way the Chinese all appear similar to us, and Europeans likewise to them.

19. See, for example, E. Lausch, Manipulation (London: Fontana/Collins, 1975), pp 78, 94.

20. Mary Midgley, however, has recently maintained that the keeping of certain animals in zoos is rather like this, or at least predominantly conveys a message about human power. I attempt to reply to this claim in chapter 6.

21. M. Brambell, "The Requirements of Carnivores and Ungulates in Captivity" in UFAW Symposium, The Welfare and Management of Wild Animals in Captivity (Potters Bar, Herts: UFAW, 1973), pp 44-49; p 45: "The general aim is to provide an environment in which the animal, if it could, would not know that it was in captivity."

22. See Regan, op. cit. (chapter 1), pp 109-116 for a discussion of the misuse of the term euthanasia.

23. Not, of course, that the varied requirements of different species are not vitally important too, which is why we need to consider carefully by what criteria we can judge their wellbeing; this is what I try to do in chapter 9.

Chapter 4

ANIMALS HUMAN AND NONHUMAN

I have already suggested (see 3.2) that there is no difference in principle between humans and other animals with regard to freedom. I want to try to show now how difficult it is to pinpoint any such difference of principle between humans and other animals. Obviously there are differences: the human species differs in all kinds of respects from any of the other primate species, never mind other mammals. But the point is that animals seem to have consciousness or awareness, to be individuals and even perhaps persons, to show feelings and experience pleasures very like humans. The strongest candidate for marking humans off as something quite different from animals is perhaps still today, and has certainly historically been assumed to be, man's possession of language and his rationality (whatever that exactly is). Even there, as I shall try to show in 4.4, there are indications of much more continuity between us and animals than is usually supposed. But first, the question of animals' consciousness or awareness, including their experience of pain.

4.1 PAIN AND AWARENESS

Now it is perfectly true that receiving sensory

information and reacting to it, which all animals unquestionably do, is not the same as having conscious experience. We ourselves can be aware of our surroundings without being consciously aware, as is evident from the "cocktail party effect", when we suddenly hear our name mentioned in a conversation far away that we were not consciously listening to at all, or when a mother is awakened "selectively" by her child's crying (1). Descartes notoriously suggested that animals were not consciously aware at all, but were just automata. Not having things like the self-adjusting missiles of today to point to, he drew comparisons with hydraulically powered moving statues (for which there was a fashion at Versailles, and which particularly fascinated him (2)). There is enormous interest today in the parallels between brains and computers, and in what light computers can shed on the workings of the nervous system. The question has even been raised whether a computer could feel pain, and if not, exactly why not (3). The special significance of this is that pain is an essentially conscious experience (4). Perhaps one can hear or see unconsciously, but I do not think that one can feel pain unconsciously. So, if we grant that animals feel pain, then we have granted them at least one kind of conscious experience. A sinister aspect of Descartes' theory (which may only have been a hypothesis as far as he was concerned) was that it served morally to authorise vivisection: animals could feel no pain if they were only

machines (5). The theory hovered in the background of biological research for centuries, not least in 19th century France where the "School of Paris" treated animals with unbelievable barbarity (see chapter 6 below) (6). Whether or not any of the French 19th century researchers genuinely held the cartesian belief about animals' inability to feel pain, British biologists certainly accepted that animals could feel it, and probably as intensely as humans (7). A later Behaviourist attitude has encouraged researchers to write scientific reports in language supposedly "objective" and non-committal on the question of animals' actually feeling pain, though, it seems to me, some scientists have clearly never doubted that, for example, rats, or even ants, could feel pain (8). Besides, it seems odd for, say, a research psychologist to condition his animals by "painful" stimuli (sometimes in the course of actually studying pain) and yet still maintain that they are not actually being hurt (9). In any case, it has, within the last decade (and no doubt partly thanks to the publication of Griffin's book, The Question of Animal Awareness) become acceptable and even fashionable for researchers to accept that animals do have conscious experience (including that of pain); there has been considerable interest in cognitive processes for much longer (10).

There are many puzzling aspects of pain. Pain thresholds themselves seem to vary culturally; the very experience of pain may depend on an environment in early

life which provides the right experience; it is even possible apparently to feel (following a lobotomy operation) pain and not mind it (11). One of the most interesting aspects is that the body appears to have its own ways of controlling pain by, among other methods, the production of natural opiates or pain-killers, called endorphins; and it is thanks to these, no doubt, that both humans and animals probably do not feel pain in the short term in some cases of serious injury. The biological advantage of this is to maximise chances of escape (12). Some have suggested that to feel pain requires being able to conceptualise it, but to me it is very striking how far the occurrence of pain seems to be a specific biological device preventing self-injury. Evidence is provided by those unfortunate people who lack (somehow) the pain-causing mechanism, and whose inability to feel pain makes them dangerously prone to serious injury (13). While I agree with Stephen Clark that we should by no means be concerned about other animals exclusively because of their liability to experience physical pain, and appreciate his emphasis on pain's not necessarily having any connection with sensations, it seems to me that severe physical pain remains a rather specific and very terrible experience (with a biological role) which can occur or not occur. The fact that it can occur is at least an additional reason, even if it ought to be superfluous as a motivation, why we should treat all creatures humanely (14). At any rate, whatever problems there are with pain apply equally to

humans and to animals. There seems not the slightest justifiable reason for supposing that animals can not feel pain; and veterinarians have clearly never doubted it, as in a vet's comment (more than fifty years ago) about the importance, in trimming a dog's claws, of not cutting too close to the quick because of the danger of causing "a great deal of pain" (15).

The certainty, which I think it is, of other animals' experience of pain, seems itself a reason for attributing to them, as commonsense would, a whole range of other conscious experience also. Another major reason for imputing sense experience in general to animals is that such awareness, if not biologically useful, would not have evolved; it clearly is useful to us, even for helping us with such basic problems of living as the need to avoid bumping into objects. But as such a need is obviously shared by other animals, a human monopoly on conscious awareness seems rather unlikely. Presumably animals, including ourselves, have the advantage, as a result of the fact that their sense receptors and brains do not operate merely like the photoelectric cells of an automatically focussing camera or like a thermostat, of being able to adjust to "unexpected" problems in their environment, to choose ways of solving them (16). In a normal situation calling for no decisions our "automatic pilot" will suffice. If a problem occurs a decision can only be made because we are conscious. Even though a decision (eg to change our course when crossing the road

to avoid a car) may be made instantly, and without conscious consideration, it seems to me still to be our conscious mind which does it, or rather ourselves who are able to because of being conscious. I would think decisions such as these - adjustments to the situation - can be made equally by higher animals through their possession of consciousness. It is only because animals have a degree of freedom to act (contrasted for example with plants) that, biologically speaking, they require to be motivated. What Bentham went too far in regarding as directing all human activities, "the two sovereign masters, pain and pleasure", obviously do play a considerable part in motivating us, and surely in motivating animals (17). The cat seeks food because she is hungry - she has a feeling of discomfort of a particular kind which presumably she learns disappears when food is obtained. Such motivation is only possible if animals have awareness.

Another argument for supposing animals to have awareness is the similarity of their sense organs and nervous systems to our own; we know that in ourselves events in these are closely connected with, and appear to be essential for, the occurrence of actual conscious experience; so it seems likely that the operation of the animals' organs should be similarly connected on occasion with conscious experience. Voltaire put this argument vividly, and ironically the same argument essentially is used by Descartes, who only seems to be expressing doubt

that animals - and mainly lower animals such as "worms and flies and caterpillars" at that - could think, not that they could feel (18). I think that new anatomical and physiological knowledge - of A-delta and C-fibres, of the reticular formation and the limbic system, for example - make Voltaire's argument still stronger (19).

The argument for animals' having sense experience because they have similar sense organs and nervous systems to ourselves is similar to the argument from their behaviour's being similar: animals seem to be acting as if they are having sensory experiences as we do, avoiding objects etc; so presumably they are having such experiences. The argument, at least as far as the comparison of sense organs and nervous systems goes, suggests that we have less and less reason to think animals have sense experience, the further down the evolutionary scale they are, and the less complex their nervous systems.

Interestingly however, it seems not out of the question to attribute awareness even to protozoans. After all, a protozoan consists of the one basic unit of which nervous systems are constructed. H.S. Jennings' view was that Amoeba and Paramecium from their behaviour look as conscious as any larger animals (20). The protozoan ciliate Stentor may not show conscious awareness but it shows behaviour which is "highly flexible and unmistakably adaptive to... circumstances" (21). But it is important to stress that, while we have no good reason to be certain

that protozoans, say, do not have sensory experience, we similarly cannot be certain that they do, whereas we do have every reason to be certain that higher animals - mammals, birds and other vertebrates - have sensory experience comparable with our own.

It seems to me that we do ourselves have experience of different levels of awareness. We know what it is to be unconscious as in dreamless sleep; we know the experience of waking up, when we pass through different levels of consciousness (22), and thus can in some degree appreciate how there could be a continuum of possible degrees of awareness up the phylogenetic ladder.

Awareness, or at least perception, is to a great extent an active process in which the part played by the mind - e.g. our understanding and interest - affects what we are aware of, what we perceive (23). If animals at different levels on the evolutionary scale have different levels of awareness, this will not depend only on the quality of the sense organ; it will also depend on the quality of the mind of the organism. Thus we, even where our eyes, say, are not better than a bird's (and in some cases they are much less powerful), may see far more when we look at some object because of its significance for us.

However, just as to see the evolutionary scale as a linear progression is only partly true, and while, running though the evolutionary scale, there is probably a gradually increasing degree of awareness, this is only part of the picture. Different kinds of animals will have

many different kinds of awareness, not superior or inferior necessarily to each other (24). Differences arising from varied interests are in addition to those arising from actual differences in the sense organs: owls and bees do not see what we see as red; but bees and butterflies are stimulated by ultra-violet, so see more in many flowers than we do, and so on. Part of our ability to see as we do apparently depends on the fact our eyeball has a ceaseless tremor, which a frog's eye does not (25).

In one sense, we all occupy separate worlds of experience, or, as it has been put, each of us is at the centre of his own sensory universe. This picture of J. von Uexkuhl's of each animal living in its own specific world is something like that of Sprigge's of human beings as "centres of consciousness" (26). The picture seems useful in representing, especially with other animals, though with other people also, how their experience may be very different from our own; it also emphasises how there seems no good reason for not regarding each individual human or animal as of comparable importance, being the centre of his universe of experience. It is also true that we do not in every way occupy private worlds; we do communicate, do share each others' experiences (27). But it does bring home how we have another reason for respecting animals besides recognising that they have sensory experience like ourselves: the fact that they have sensory experience unlike ours. That we do not understand them, that they are

"other", seems also a natural reason for not regarding ourselves as having any right to treat them just as we like (28).

Recognising how different the experience of different animals is from our own is likely to encourage us to respect them. The attitudes of novelists and poets who have tried to construct imaginatively the worlds of nonhuman animals show this, I think. The act of imagination and of sympathy with the animal needed to do this convincingly seems to go naturally hand in hand with an attitude of respect for the animal concerned. I suggest too it may not be so difficult to see into the world of a different kind of organism as Nagel for example feels (29).

4.2 FEELINGS AND PLEASURES

4.2.1 FEELINGS

To anyone who has ever taken his dog for a walk and perhaps thrown sticks for him to retrieve, it must seem rather ludicrous to seek to establish that animals have feelings. To throw the sticks implies recognition that the dog likes the game and wishes you to go on throwing them. Huizinga remarks that animals "play, so they must be more than merely mechanical things" (30). There is no doubt more to learn about the significance of the gestures the

dog makes even on such familiar occasions as this. But for the ethologist (for example) to approach such behaviour as if he had no prior knowledge but was seeking by science to find out not only whether the dog was showing feelings but whether he could have feelings to show, would be almost like a psychologist's seeking to learn from his science whether his fellow psychologists were feeling creatures like himself rather than hominoid automata. However while we surely have prescientific knowledge, as Sprigge has called it, that dogs have feelings, we presumably have no such knowledge about snails, or even octopuses. It is not an open question, I suggest, that dogs have feelings, but it is whether snails do (31).

To appeal to common experience to assert that dogs have feelings should not imply that dog-lovers can be relied on in all their beliefs about the emotional or intellectual capacities of their animals. Psychologists have reason not to base their theories on anecdotes; people can get carried away and often are, imagining for example that dogs can understand our language virtually as we do. But we have the word "play", the concept, and we can apply it. It is not clear that we would be closer to reality if we avoided the term and tried only to use terms describing physical movements (32). We do not see merely such movements; we see gestures and actions. To say the dog's tail moved sideways (or in some precisely described manner) rather than "the dog wagged his tail" would hardly be more accurate; it would be less so. We can see the dog

wagging his tail; true, we can merely describe the physical movements involved if we choose to, but this is something different from the tail wagging. We are interpreting in saying "the dog wagged his tail", but then we are interpreting in using the word "tail". Come to that, we are interpreting in using the word "dog". And dogs are animals which (among other things) wag their tails. We cannot use language without interpreting. It is no Aunt Sally I am here arguing against. For example, Rachels quotes the words of a psychologist concerned in an experiment into the capacity of monkeys to show sympathy with their fellows. Despite the subject of the experiment, the language of the experimenter seems intended to cut out any implication that animals have feelings, and an inner life (33). But are there not scientific reasons for expecting that dogs will be in this respect as in so many others similar to man? Humans and dogs are both mammals, intelligent, social and capable of being partners (34). Given all this, is not the onus on whoever wishes to disprove that dogs have feelings rather than the other way round?

Still, it may be useful methodologically to give a precisely observable meaning to terms referring to feelings – e.g. by "pleased" to mean "jumping up on its hind legs, and likely to go through the door before us when we open it". We can then use the expression and avoid begging any conceivably open questions about the animal's inner life. But if it is useful scientifically to do this,

it is precisely equally the case in psychological study of humans. Such an approach would obviously not in the case of humans imply that actually humans had no "inner experience", and there is no reason why the use of such an approach should imply this any more in the case of animals.

Can we with equal confidence state that animals have emotions as that they have feelings? There is a long tradition in human thought, stemming from Plato's Academy, that emotions have a cognitive content which differentiates them from, say, "bodily sensations and bodily drives", the assumption being that only man can think (35). But a cow separated from her calf shows distress. It is because she believes her calf to be separated that she expresses the emotion. This seems a straightforward description of a situation familiar to farmers and veterinarians, although the view that a nonhuman animal can be properly said to have beliefs has been challenged (36). I do not necessarily wish to imply that animals' emotions are the same as humans' emotions, but I do think they are similar enough for us properly to use the same word of both and in the same sense. There is no sharp dividing line (37). The most morally creditable behaviour of humans usually stems from emotion - self-sacrifice, or extreme effort on behalf of another, and so on. It is proverbial that some animal mothers will take any risk to protect their young. They do not "think about it", no doubt. But we do not withhold credit from a

human hero because he "didn't think about it". I doubt if heroic acts ever are produced other than out of emotion. An example of an animal apparently behaving morally in the attempted protection of a human infant is given by Reeve (38).

4.2.2 PLEASURE

Even where it is granted that animals can feel and perhaps have emotions, and where especially it is granted that they can feel pain and suffer in other ways too, there is often a reluctance to grant them an equal ability to experience pleasure (39). But the mere demands of symmetry suggest that pleasure is equally likely to occur, and likely to be as important, as is suffering. It would be surprising if animals were like us in the one respect and not the other. I suspect that in fact an animal's pleasure can probably be very similar to ours, like a horse's enjoying being able to see better as a result of the provision of spectacles, as well as rather different, like a hyaena rolling in, "...ecstasy of ecstasies, her own or her companion's vomit" (40).

The most important thing is that we should not underrate the importance of animals' pleasures. I think it is worth providing a list of pleasurable experiences or sources of pleasure which humans and at least "higher" nonhuman animals probably share:

(i) Pleasures of feeding, especially when previously hungry.

(ii) Urination & defaecation.

(iii) Pleasures such as sunbathing or simply enjoying the sun on a hot day (which obviously applies to cats and dogs, and apparently can apply to a hare (41)); plunging into water; rolling in mud (engaged in by, among others, dogs, deer, and Barbary sheep); sliding down banks (such as otters and badgers go in for (42)).

(iv) Love making and sex (the physical side of erotic love being even for humans a very important part of it).

(v) Companionship, the consoling nature of mates and close "friends", "snuggling up", mutual grooming, stroking, etc.

(vi) Pleasures of being dominant, receiving "obeisance" from inferiors, fighting for this position and winning it, but also (perhaps) pleasures of being "properly" subservient, i.e. obeying the normal rules involved in "knowing one's place" (purposely here seen in comparable terms to those of a human servant because this can have satisfactions.)

(vii) Playing (43), which could well include some of the activities in (iii) above.

(viii) Parental/motherly satisfaction of having young and caring for them.

(ix) Reciprocal satisfactions of young in relation to mother (or father).

(x) Comforts, security of having a home, a home-base, a territory, etc.

(xi) Pleasures of hunting, exploring, having a sense of purpose, working and hunting together (as in the case of

dogs for example), catching food. (Dogs also enjoy just meeting each other.)

The purely physical pleasures (if such there are) in the above list are not replaced by the more sophisticated, "intellectual" pleasures available only to humans, so I do not think Frey is justified in dismissing the pleasures and interests of, eg, a chicken, as if our important pleasures were utterly different; these physical pleasures are very important to us too; indeed, to some extent they are probably desirable, if not essential, for good health (44).

Perhaps our enjoyment of anything depends on change, on its not going on too long. No doubt a cheetah, if it does not enjoy the chase, at least enjoys relaxing afterwards, and especially, being hungry, enjoys being able to feed. It seems likely an Emperor penguin particularly enjoys the feed of fish brought by his mate after a three month privation (45). It obviously is biologically useful that certain natural functions - breathing, feeding, urinating, defaecating, above all mating - should be pleasurable. It seems to me significant that the unpleasant feeling of hunger is not an automatic consequence of needing food: it returns at intervals; and will disappear (as will feelings of tiredness) if something important occurs, without resulting injury (unless the delay is extreme). Hunger feelings are devices encouraging one to satisfy biological needs in a regular way, this being presumably more efficient than making the

feeling of hunger directly related to or identical with the need for food. Mild suffering, or what we ought to be able to call "unpleasure", is equally biologically useful. If running very hard for a long time did not become unpleasant, an antelope or cheetah might (because of the build up of an "oxygen debt", an excess of lactic acid and so on) exhaust itself. The sensation we call "getting out of breath" has a function as getting hungry does. In general the capacity to find something pleasant or unpleasant is only likely to evolve if it is useful. This presumably applies to us and to other animals in exactly the same way.

The experience of boredom is similarly useful.If our pleasure in an activity did not diminish, we would be likely to continue doing it indefinitely. This is precisely what a rat with its "pleasure centre" stimulated continually does (46). Here the pleasure would be unabating, and disastrously for the rat so far as carrying out the normal necessities of life is concerned. If boredom is, as it were, a biological device which ensures that we do not spend too long doing one thing just because we enjoy it, its occurrence in (some) animals as in man seems likely. The fact the rat has a "pleasure-centre" also indicates that pleasure is a factor in its life.

If all animals lacked any capacity for enjoyment - as well as for suffering - we would be faced with a mysterious biological discontinuity (47): it would be a puzzle how such a capacity could have managed to evolve in ourselves.

4.3 INDIVIDUALITY AND PERSONALITY

Although Descartes viewed animals as automata (see 4.1 above), he also spoke of training animals, and of their differing abilities to be trained (48). He was recognising how unlike machines they are; that they are, in fact, individuals. The earliest (perhaps) of all novels, Homer's Odyssey, recognises the individuality of Odysseus' dog Argus, not least in the dog's very ability to recognise his master as an individual (in this case after years of absence) (49). Many will know how a dog or cat's death can be a real bereavement: one is aware of the loss of a particular individual, in fact of a person (50). A domestic dog can so very obviously depend on his humans' company for his happiness (the word seems appropriate), that it seems far from fantastic to suppose a dog can suffer considerably – even though he no doubt can not conceptualise that suffering – from the loss (i.e. the permanent disappearance) of a human he knows well. Perhaps, especially in the wild state, he could suffer equally from the loss of another dog.

Dogs and cats, of course, we happen to know well. Man's relation to them is a remarkable phenomenon, though there can be a similar closeness between man and other domestic animals such as horses. But I suggest there is also every reason to suppose that it would be possible to have similar personal relationships with other similar mammals, and indeed birds. Numerous accounts of various

people's friendships with lions, bears, mongooses, otters, and so on testify to this (51). Howard got to know various birds; she came to recognise individuals and even, it seems, distinct personalities (52). She shows how the contact and communication that we all know can be established with a dog is not unique to dogs, or their relatives, or even mammals; something similar can happen with birds. Jane Goodall and Hugo van Lawick discuss how the individuality we are familiar with in domesticated animals exists just as much in wild ones (53).

While we know that the human brain is particularly well-developed in certain respects, and it seems reasonable to presume that, partly because of this, we are able to form (so far as we know) deeper and longer-lasting personal relationships than most other animals, we should appreciate the extent to which some other animals can also form such relationships. These in some cases, such as the relationship Goodall noted between the chimpanzee Flo and her son Flint, can parallel human relationships to a startling degree (54).

Morton Boyd once recalled the attitude of a distinguished zoologist, the late Fraser Darling, towards grey seals and red deer: how he had thought of them in many ways as he thought of people, and this had helped him in his study of them. Books such as Howard's also make us aware how much we are similar to other animals, how much that we know as characteristic of ourselves is in fact characteristic of us because we are animals, not because

we are different from other mammals (or even from birds). As Lockley remarks, after reviewing the "marital" relationships of rabbits and the buck's partly tolerated "extra-marital relationships", "Rabbits are so human. Or is it the other way round - humans are so rabbit?" (55).

4.4 LANGUAGE AND RATIONALITY

It has long been assumed that humans are rational in a way in which animals are not, and that this rationality depends on humans' equally unique possession of language. Hamlet, for example, bemoaning his mother's too hasty marriage with his uncle following his father's death, says: A beast that wants discourse of reason / Would have mourned longer (56). I want to suggest that human language, although syntactically and semantically unique, is in two other ways comparable with animal communication, and that rationality, understood in three different senses, is not unique to humans.

4.4.1 LANGUAGE

That human language can be used to communicate with (some) animals is a matter of common experience. Humans talk to their dogs, cats and other companion animals. Bartlett of London Zoo (see chapter 2) remarked on the extraordinary power of speech in taming wild animals (57).

It might be commented that in such cases it is not

language as such which is being used, but merely the tone of voice, pitch and other such extra-lingual devices. It is no doubt the case that meaningless arrangements of words would be just as effective in speaking to an animal, and the reason we customarily make statements to our pets which, once we think about it, we accept they cannot possibly understand is that it is actually easier to speak sense than to utter meaningless sounds. But it is arguable that we are still communicating with them by language (non-verbally but not extra-lingually) because our normal inter-human use of spoken language includes, or is supplemented by, not only intonations which are not indicated in written language but other devices such as changes of pitch and volume (58). It is also supplemented by facial expressions, gestures of the hands and body, and so on. Now these pitch changes, gestures, and so on, are presumably important in human communication: they are something we all engage in to varying degrees. Perhaps they do not signal factual information but rather express feelings, and reflect, or even play a part in bringing about, various social relations. But presumably it is important that we communicate such things.

It is hardly insignificant that at least certain accessories of language should serve so effectively for communication with animals. Clever Hans, the horse whose apparent ability to add successfully was eventually demonstrated to be instead an ability to pick up signals from his master of which the latter himself was unaware,

was clearly a remarkable animal. Similarly Washoe and other linguistically instructed apes may be interpreting human gestures or other signals on occasion rather than understanding the meaning of statements directly; but if so they are still demonstrating their ability to understand our communications, even though sub-verbal or extra-verbal communications, and also understanding by a method we use also, though possibly not as well as they do (59). In using the various signals by which we supplement our spoken verbal language, we are using, so it seems to me, a system of communication common in some degree to ourselves and our fellow primates, as well as, to a lesser degree, to other mammals also, and thus a system which we have presumably been using since before we were human.

Our verbal language on the other hand seems enormously different from the means of communication of any other animals known to us, but it would be surprising if it had not evolved from elements of communication common to some other animals, and if there were nothing in the slightest degree similar to be found today in other animals. Many animals are sensitive to and, it would seem, can learn the meaning of individual words. For example, a dog can learn a considerable vocabulary of commands and not only commands. So animals' sensitivity to sounds is not only a sensitivity to pitch and tone and the like but to sounds differing from each other in the way our spoken words differ. So here there is a raw material of spoken language with regard to hearing. But we can go further,

for some primates have calls with distinct meanings, and calls which are not innate, for example three warning calls made by vervet monkeys identifying three different kinds of predator (60). Young vervets can use the calls wrongly and need to be corrected. There seems to be here a protolanguage, and one with several features common to human language (61).

There is however no combination of meaningful sounds into complex meaningful statements. The only nonhuman candidates for language users in the sense of utterers of words combined, however elementarily, grammatically and meaningfully are Washoe and other apes who have been taught ameslan or other human symbolic though nonspoken languages. But that there is some potential ability for such combination seems indicated by the at least partial success of some of the ape language work (62).

Of course human language remains an extraordinary and unparalleled development, but not one I think entirely unique. Somehow humans achieved this extraordinary breakthrough, but one can see a little of the raw elements on which natural selection worked to produce it, and can make informed guesses as to aspects of the prehuman situation which may have helped to ensure that language developed in humans or other human species alone and not in other primates (or other mammals). It may have been a lucky anatomical change allowing us to make a wider range of throat sounds than chimpanzees can produce; it may have been the dscovery of fire enabling us to function in

darkness but in a situation which conveyed enormous advantage on any improvement in precise communication by sound; it may have been an urgent need to communicate arising from our predatory, social way of life in open or semi-open country (63). What matters here is that some events caused humans to develop language where other primates did not, but it was not a logical necessity that human ancestors should develop it any more than it was a logical necessity that other primates or other mammals should not.

4.4.2 RATIONALITY

I suggest three possible senses of "rationality". These three kinds, as I see them, of rationality I shall then consider in relation to humans and other animals, though I shall spend most time on the second.

(i) the ability to think;

(ii) deciding, by reasoning, how to occupy oneself;

(iii) acting sensibly and morally;

(i) Thinking in the sense of reasoning has to an enormous extent been made possible by language. Thinking in the sense of supposing something to be the case has also been enormously extended by language, not least because we are able to refer to things of all kinds, whether or not present to our senses, though, as I have said above, I think a cow or a dog can still think such and such is the case, to however limited an extent (64).

Most reasoning requires referring to particular things more or less precisely, which requires the prior

formation of the necessary concepts, and making statements about those things, and language seems essential for this. It is difficult to imagine reasoning occurring without language but it must do so, and has been, I think, demonstrated to in apes, and in human infants, and perhaps in other mammals, other vertebrates and also cephalopods (65). Language evolved (probably) as a device aiding communication between proto-humans; it may have been as a "spin-off" that it enormously increased the possibilities of thinking, leading to vast developments of human culture and society (66).

(ii) Reasoning or thinking logically does not motivate us or itself enable us to choose what to do. Motivation and choice are a matter of what we want to do, what our tastes and inclinations are. A large part of these is likely to be genetic. We cannot choose our tastes, what we enjoy, or what we are good at. Still, is not what we enjoy, what we spend our time in, how we order our lives, a special human concern, and quite different from anything non-human animals go in for? I suggest it is not to the extent we assume. I will take just two examples, the arts and social relations.

The performer - actor, comedian, indeed any public speaker - must get his audience's attention, and this is like asserting a kind of dominance; he will probably use methods which may be similar to those of other primates, but which in any case are probably partly under genetic control in humans, and are therefore part of human nature

(67). Genes making possible such actions are part of the human gene-pool. The similarity of a human leader's performance (Mrs Thatcher or Mr Kinnock) to that of a performer as such is striking. Both face similar tasks, and are aided by similar "back-up".

There is a dual aspect to a performance in that "we", the audience, respond (or fail to). Our tendency to respond, if the right "chords" are struck by the performer, seems to me equally part of our nature, and akin to a readiness to respond to dominant individuals in other social species.

Pretending, make-believe, is something young children go in for; they do not need to be taught it (at least by an adult) or shown the point of it. So the central convention of drama - that someone stands up on a stage and pretends to be someone else - would be perfectly comprehensible to a young child. So at least ability to, and tendency to, pretend seem likely to be partly under genetic control and widespread in the human genepool, or, to put it another way, to be part of human nature. Pretending is something certain animals can do. Many primates have a "playface"; many other mammals (at least) as well as primates, can play: they thus can understand in a practical way the difference between doing something "in fun" and doing it "for real" (68). Furthermore many animals, dogs obviously, can play with humans. They can become excited as a result of gestures or words of ours. They can pretend to be fierce, or to be hunting. A monkey

at Bruton Street was tethered to a ring on a pole, and used to sit at the top, pretending not to to be paying attention, and then would grab the hat of an unsuspecting passer by (69). Hediger records a chimpanzee pretending similarly, and highly convincingly (70). These are also examples of playing, and of showing interest in another's reactions. The famous elephant Jumbo on the voyage to America picked up a sailor's clean washing and dirtied it (71). Elephants at London Zoo giving rides would grab by-standers' bags or umbrellas and, it seems clear, pretend to be about to eat them, and an elephant at Glasgow will pretend to her keeper that she is about to eat (say) a crisp packet (72). These last two seem to me not only examples of an animal joking, pretending, and playing, but actually performing (the London Zoo example particularly). An example of Hearne's of a dog at a show apparently purposely disobeying orders seems also an example of performing - of the animal's being aware of the audience, and of that audience's response (73). This is not so surprising, perhaps, in view of the extraordinary ability of the horse Clever Hans to response to an almost imperceptible gesture by his handler (74). Perhaps it is not so surprising either that an animal should be interested in the reactions of onlookers. The use of bluff, again an example of pretending, by animals is almost fundamental, I would think, as, for example, by an elephant pretending to charge. Why should not this be conscious? A dog, as I've said, can distinguish playing

and not playing. It can also distinguish a voluntary and involuntary action, as when one strikes a dog unintentionally, and the dog, initially reacting as to a punishment, responds to reassurance that the blow was not intentional.

What of music or dancing? First the musician, and certainly the dancer, is a performer, and so certain points above apply; i.e., he needs to get attention. Nureyev, in an appreciation of the late Fred Astaire, wrote of the almost "hypnotising" effect of Astaire's dancing (75). In addition, note how dancing and musical ritual probably go back a long way in man's past - they are not in essence a product of our recent culture, anyway - and the fact that there are indications of chimpanzees engaging in something like dancing, periods of excitement anyway (76). Perhaps human dancing, music and ritual have their origins in pre-human behaviour.

What of visual arts? Morris seemed to show there was an embryonic aesthetic sense in apes, at least akin to a two year old child's visual appreciation (77). Hardy has emphasised how flower coloration and cryptic camouflage are actually selected by other animals' perceptions and responses - which seems to tell us something of how they see, though I do not suggest we are here talking of an even embryonic aesthetic sense (78). There is also a remarkable account of a chimpanzee seemingly showing wonder at a waterfall (79).

To take a rather sinister aspect of social relations,

parades, especially when they include displays of goose-stepping, are presumably a demonstration of dominance and of power. Perhaps goose-stepping looks frightening because, being difficult to do, it dramatically demonstrates troops' fitness and therefore effectiveness. But I am told that vultures "goose-step" in approaching a kill - presumably this can frighten off predators - and Hediger notes its occurrence in deer (80). That humans, when they goose-step, are probably doing something explainable in terms of human nature itself seems to me indicated by such ritual's primacy over mere new political systems like communism, as illustrated by the fact (as I am informed) that Moscow ceremonial troops still goose-step according to the best military traditions, which happen to be Prussian (81). I imagine this is a variation on dancing, whose long ancestry I have already suggested. At an individual human level, a possible fight between two individual males is usually preceded by, and often averted by, a show of strength, and an attempt to dominate (82). In human peacable relations, we still have, I think, almost unavoidable dominance and submissiveness being shown, not sinisterly, almost as a necessary oiling to social relations, which I will look at further in chapter 6.

So here is one vast sphere of human activity - the arts - which is enormously developed from anything happening in animals, but by no means wholly different from what animals do; and another even more fundamental,

social relations, which basically are probably a matter of animal behaviour, that is, of human animal behaviour. We are not guided here by anything to do with reasoning. It is not our rational nature, in a sense distinct from animal nature, that is guiding us.

(iii) I have not been concerned so far with praising or blaming. But I think we speak of rational behaviour in a third sense, behaviour that is both sensible and morally creditable. It is almost proverbial that human language and mental capacity have enabled man not only, on occasion, to soar to heights far beyond the achievement of any nonhuman animal but also, only too frequently, to sink to depths equally far below. As Gulliver's houyhnhnm master commented, after hearing an account of the horrors of European war, "when a creature pretending to Reason could be capable of such enormities, he dreaded lest the corruption of that faculty might be worse than brutality itself" (83).

So rationality in none of these three possible senses marks, I suggest, any absolute distinction between ourselves and other animals. And do not Hamlet's words suggest the lack of any such distinction? A beast "would have mourned longer": would have displayed more feeling; would have behaved more creditably.

NOTES TO CHAPTER 4

1. I. Oswald, Sleep (Harmondsworth: Penguin, 1966), pp 33-4.
2. See extract from L'Ame Raisonable in J.W. Reeve, Body and Mind in Western Thought (Harmondsworth: Penguin, 1958) p 303; see also J. Cottingham, "A Brute to the Brutes?: Descartes' Treatment of Animals", Philosophy 53, No. 206 (October 1978), pp 553-4, espec. p 553, for Descartes' use of term "automaton".
3. D.C. Dennett, Brainstorms, Philosophical Essays on Mind and Psychology (Sussex: Harvester, 1981), pp 190-229: "Why You Can't Make a Computer that Feels Pain".
4. Cf. T.Nagel, Mortal Questions (Cambridge: CUP, 1979), p 166.
5. Descartes was apparently adopting the view of the Jesuit Pereira (see B.A.G. Fuller, "The messes animals make in metaphysics", The Journal of Philosophy XLVI, No 26, 1949, pp 829-838, esp. p 833); see Cottingham, op. cit., for suggestion that Descartes' beliefs may have been rather different from what is usually supposed; see also L.C. Rosenfield, From Beast-machine to Man-machine (New York: 1968).
6. J. Vyvyan, In Pity and in Anger (London: Joseph, 1969), p 84 ff.
7. Ibid, pp 84-90.
8. For examples of experimenters' "objective language", see J. Rachels, "Do Animals Have a Right to Liberty?" in T. Regan and P. Singer (eds), Animal Rights and Human Obligations (Englewood Cliffs, N.J.: Prentice-Hall, 1976) pp 205-223, esp. pp 211-212.
For rats' feeling pain, see R. Thomson, The Psychology of Thinking (Harmondsworth: Penguin, 1959), pp 121-122; for ants' feeling pain, see D.W. Morley, The Ant World (Harmondsworth: Penguin, 1953), pp 169 and 174.
9. Clark, op. cit. (chapter 1), pp 41-42.
10. D.R. Griffin, The Question of Animal Awareness, Evolutionary Continuity of Mental Experience (New York: Rockefeller University Press, 1976); see discussion in M. Midgley, Animals and Why They Matter (Harmondsworth: Penguin, 1983), pp 138-140; for interest in cognitive processes, see B.M. Foss (ed), New Horizons in Psychology (Harmondsworth: Penguin, 1966), espec. p 13.
11. R. Melzack, The Puzzle of Pain (Harmondsworth: Penguin, 1973), pp 22 ff (cultural variation), pp 28-29 (apparent dependence of pain on experience); D. Bowsher, "Pain sensations and pain reactions" in D.G.M. Wood-Gush et al (eds), Self-awareness in Domesticated Animals (Potters Bar, Herts: UFAW, 1981), pp 22-28, esp. p 24 (lobotomy patients).
12. G. Rattray Taylor, The Natural History of the Mind (London: Granada, 1981), p 175.
13. Melzack, op. cit., pp 15-16.
14. Clark, op. cit., p 54 ff.
15. R.F. Wall M.R.C.V.S., Keeping a Dog, Its Training

and Care in Health and Sickness (London: Black, 1944; 1st edit. 1933), p 44.

16. But see S.R.L. Clark, "Awareness and self-awareness" in Wood-Gush, op. cit., pp 11-18, espec. p 14; see also S.R.L. Clark, From Athens to Jerusalem (Oxford: Clarendon, 1984), pp 126-127.

17. J.Bentham, Introduction to Principles of Morals and Legislation, First Section.

18. Voltaire, "A Reply to Descartes" (from Voltaire, Philosophical Dictionary, "Animals") in Regan and Singer, op. cit., p 68: "You discover in it all the same organs of feeling that are in yourself... has nature arranged all the means of feeling in this animal, so that it may not feel?"

Descartes, letter to Henry More, Feb 1649, in ibid, p 65.

19. Melzack, op. cit., pp 84-85 and p 96 ff; for possibility of significant anatomical differences, see Bowsher, op. cit., pp 25-26.

20. W. Grey Walter, The Living Brain (Harmondsworth: Penguin, 1961), p 29; H.S. Jennings, The Behaviour of the Lower Organisms (Columbia University Press, 1905), quoted by Alister Hardy, who agrees with him, in his Darwin and the Spirit of Man (London: Collins, 1984), pp 163, 164.

21. J.A. Ramsay, Physiological Approach to the Lower Organisms (Cambridge: CUP, 1952), p 147.

22. Aldous Huxley, The Art of Seeing (London: Chatto and Windus, 1943), pp 17-19.

23. Consider "flipflops" like Boring's "object-ambiguous mother in law", R.L. Gregory, The Intelligent Eye (London: Weidenfeld & Nicolson, 1970), espec. p 39.

24. L. and M. Milne, The Senses of Animals and Men (Harmondsworth: Penguin, 1965), p 21.

25. V.B. Droscher, The Magic of the Senses (London: Panther, 1971), pp 14, 16.

26. Uexkuhl's view of the animal as living in its own specific world is referred to by Hediger in connection with the effect on a wild animal of being captured: Hediger, op. cit. (chapter 1), pp 27-28; T.L.S. Sprigge, "Metaphysics, Physicalism, and Animal Rights", Inquiry 22, 1-2, Summer 1979, pp 101-143, espec. p 108.

27. Clark, "Awareness and self-awareness" in Wood-Gush, op. cit., pp 12-13.

28. Cf Edith Sitwell's view referred to by E.J.W. Barrington, Invertebrate Structure and Function (London: Nelson, 1967), p vi: "that it is odious to regard oneself as 'superior' to any living being, human or animal".

29. Nagel, op. cit. pp 166-170; see also C.S. Lewis, An Experiment in Criticism (Cambridge: CUP, 1961), p 140. Nagel himself admits in note on p 172 (op. cit.) that it may not be so difficult, and gives the use of "sonar" by blind people as an example.

30. J. Huizinga, Homo Ludens, A Study of the Play Element in Culture (London: Granada, 1970), p 22.

31. Sprigge, op. cit., p 120.

32. Midgley, op. cit., p 135.
33. Rachels, op. cit., p 218; see also M. Black, The Labyrinth of Language (London: Penguin, 1972), pp 142-143.
34. L.B. Halstead, The Pattern of Vertebrate Evolution (Edinburgh: Oliver and Boyd 1969), p 166.
35. W.W. Fortenbaugh, Aristotle on Emotion (London: Duckworth, 1975).
36. See Nelson, op. cit. (chapter 1), for summary of the scepticism of Davidson and Stich concerning animals' having beliefs. I should have thought, unlike Stich, that a dog who has buried a bone has enough of the concept of "bone" to believe that he has buried it (see S.P. Stich, "Do Animals Have Beliefs?", Australasian Journal of Philosophy 57, 1, March 1979, pp 15-28, espec. pp 18-19). However I appreciate the difficulty of surmising what thought, or belief, is like without language, though it seems to me it must occur. Stich's conclusion on whether animals have beliefs is a sanely moderate quotation from his young son: "A little bit they do. And a little bit they don't" (op. cit., p 28).
See also, on beliefs, S.R.L. Clark, The Nature of the Beast (Oxford: OUP, 1982), pp 22-26.
37. G.B. Matthews, "Animals and the Unity of Psychology", Philosophy 53, 206, Oct 1978, pp 437-454.
38. E.G. Reeve, "Speciesism and Equality", ibid, pp 562-563.
39. E.g., a comment, criticising Stephen Clark's emphasis on the concept of an animal's natural pleasures, by D. Little, "Whales and Ethics", presented at Whales & Ethics Symposium, Washington DC, 1979.
40. K. Gregory (ed), The First Cuckoo, Letters to The Times 1900-1975 (London: Times Books/Allen and Unwin, 1976), p 203, letter from R.J.E. Boggis, 1 Feb 1946, quoting from Banner of 13 Jan 1888, report about a horse fitted with glasses and clearly pleased with improvement to his eyesight; H. and J. van Lawick-Goodall, Innocent Killers (London: Collins, 1970), p 187.
41. D.G. Measures, "Closely-observed Creatures" in R. Mabey (ed), Second Nature (London: Cape, 1984), observation of a hare "sunbathing", for at least two hours.
42. E. Neal, The Badger (Harmondsworth: Penguin, 1958), illustration 25 (following p 80) of badger "sliding down the bank".
43. Ibid, p 93: observation of three adult badgers playing; illustration 24: badgers playing leap-frog; D. Stephen, Highland Animals (Inverness: Highlands and Islands Development Board, 1974), pp 67, 68: details of how stoats play.
44. R.G. Frey, Rights, Killing & Suffering (Oxford: Blackwell, 1983), e.g., p 109.
45. A. Portmann, Animals as Social Beings (London: Hutchinson, 1961), p 170.
46. J Olds, "Emotional centres in the brain", Science

Journal, May 1967, pp 87-92, referred to by E. Lausch, Manipulation (London: Fontana/Collins, 1975), p 78 ff.

47. Matthews, op. cit.

48. Descartes, Discourse on the Method, in E. Anscombe and P.T. Geach (eds), Descartes' Philosophical Writings, (London: Nelson, 1966), p 43.

49. Homer, The Odyssey, transl. E.V. Rieu (Harmondsworth: Penguin, 1946), pp 266-267.

50. M. Midgley, "Persons and Non-Persons" in P. Singer (ed), In Defence of Animals (Oxford: Blackwell, 1985), pp 52-62.

51. R.F. Leslie, The Bears and I (New York: Ballantyne, 1971), p 53, about the author's distinguishing each of three related bear cubs by slight differences in their voices.

K.Z. Lorenz, King Solomon's Ring (London: Reprint Society, 1953), p 165, knowing each of fourteen or so jackdaws by their facial expressions.

B. Kinloch, Sauce for the Mongoose (London: Fontana/Collins, 1974), pp 17-18, an acquaintance here with a single animal, but clearly one with personality and foibles.

The point about our tendency not to recognise animals as individuals is well brought out by M. Duffy, Men and Beasts (London: Paladin/Granada, 1984), p 81.

52. L. Howard, Birds as Individuals (London: Collins/Fontana, 1955). Howard may exaggerate (though the book seems to be a careful, detailed record of her observations), but clearly she is recognising something in birds, not least their individuality, which most of us fail to appreciate.

53. H. and J. van Lawick-Goodall, Innocent Killers (London: Collins, 1970), p 44.

54. J. van Lawick-Goodall, In the Shadow of Man (London: Fontana/Collins, 1973), espec. pp 260-262.

55. R.M. Lockley, The Private Life of the Rabbit (London: Corgi, 1973), pp 163-164.

56. Hamlet I, 2, 150-151.

57. A.D. Bartlett, Wild Animals in Captivity, compiled and edited by E. Bartlett (London: Chapman and Hall, 1899), p 251.

58. F. Palmer, Grammar (Harmondsworth: Penguin, 1971), p 29; see also Black, op. cit., pp 132-133, on Malinowski's "phatic communion".

59. Clark, op. cit., pp 24-25 and 31-38; V. Hearne, Adam's Task, Calling Animals by Name (London: Heinemann, 1987), pp 4-5; see also J. Sparks, The Discovery of Animal Behaviour (London: Collins/BBC, 1982), pp 144-146.

60. R. Seyfarth, "Vervet Monkey Alarm Calls: Semantic Communication in a Free-ranging Primate", Animal Behaviour 28, Nov 1980, p 1070 ff.

61. See C.F. Hockett, "The Origin of Speech" (first printed in Scientific American, Sept 1960), in Human Variations and Origins, Readings from Scientific

American (San Francisco and London: Freeman, n.d.), pp 183-190, for an analysis of the features of language.
62. A. Desmond, The Ape's Reflexion (London: Quartet, 1980).
63. C. and W.M.S. Russell, "Language and animal signals" in N. Minnis (ed), Linguistics at Large (St Albans: Paladin/Granada, 1973), pp 161-191, espec. p 187 ff (on possible significance of fire); G.W. Hewes, "Primate Communication and the Gestural Origin of Language", Current Anthropology 14, 1-2, Feb-Apr 1973, pp 5-24: includes a list (note 2, p 5) of no less than twelve categories of language origin theories.
64. See note 36 above.
65. R. Trigg, "Thought and Language", Proceedings of the Aristotelian Society, Nov 1978; S. Walker, Animal Thought (London: Routledge and Kegan Paul, 1983).
66. Hockett, op. cit., p 190, for the "initial survival value of any innovation" (including language) being "conservative in that it makes possible the maintenance of a largely traditional way of life in the face of changed circumstances".
67. A. Jolly, The Evolution of Primate Behavior (New York: Macmillan, 1972), pp 192-193.
68. C. Loizos, "Play Behaviour in Higher Primates: a Review" in D. Morris (ed), Primate Ethology (London: Weidenfeld and Nicolson, 1967), pp 176-218, espec. p 181 ff.
69. Bruton Street was the initial temporary accommodation of the Zoological Society of London; W. Blunt, The Ark in the Park (London: Hamish Hamilton, 1976), p 29.
70. H. Hediger, The Psychology and Behaviour of Animals in Zoos and Circuses (New York: Dover, 1968), pp 133-134; B.J. Benchley, My Friends, the Apes (London: Faber and Faber, 1944), pp 109-111; D. Katz, Animals and Men (Harmondsworth: Penguin, 1953), pp 26-27.
71. W.P. Jolly, Jumbo (London: Constable, 1976), p 108.
72. J. Alldis, Animals as Friends, (Newton Abbot: David and Charles, 1973), p 122.
73. Hearne, op. cit.
74. See 4.4.1 above and note 59.
75. The Observer, 28 June 1987.
76. J.D. Drummond, Opera in Perspective (London: Dent, 1980), pp 16-17: The "pygmy Negritos" on the Adaman archipelago in the Bay of Bengal probably have a level of culture like Neanderthal man. In the 1920's, there were several tribes on these islands, who used to go in for ritualised singing and dancing at night.
M. Midgley, Beast and Man, (Hassocks: Harvester, 1979), pp 247-248; D. and R. Morris, Men and Apes (London: Sphere, 1968), pp 138-139.
77. D. Morris, The Biology of Art (London: Methuen, 1962).
78. A. Hardy, The Biology of God (London: Cape, 1975), pp 33-34 and 97; A. Hardy, Darwin and the Spirit of Man (London: Collins, 1984), pp 130-134.

79. M. Konner, The Tangled Wing, Biological Constraints on the Human Spirit (London: Heinemann, 1982), pp 431-432.
80. Hediger, op. cit., p 145.
81. Goose-stepping was apparently initiated in the army of Frederick the Great of Prussia, and widely imitated because of the Prussian military reputation.
82. Consider D. Morris, The Naked Ape (London: Cape, 1967), p 159 ff.
83. Jonathan Swift, Gulliver's Travels (Harmondsworth: Penguin, 1985; first published 1726), p 295; see also S.H. Monk, "The Pride of Lemuel Gulliver" in J.L. Clifford (ed), Eighteenth Century English Literature (New York: OUP, 1959), e.g. p 113 on how Swift forces us to "gaze into the stupid, evil, brutal heart of humanity".

Chapter 5

ANIMAL RIGHTS

I want in this chapter to consider how far animals can reasonably be regarded as having rights, especially rights which we may be trespassing upon in keeping animals or in capturing them in the first place. I shall start not with questions about animals' moral or natural rights, but on the firmer ground of their legal rights. Let me say at once that I do not consider a great deal hangs on the use of the term "right(s)". I see the term as usefully encapsulating the belief that an animal (or human) should not be treated in a particular way, that "its" interests should be respected as far as possible. Stone has suggested that the granting of legal rights to natural objects such as rivers would be far from incoherent so far as legal theory is concerned, and would have certain distinct advantages (1).

5.1 LEGAL RIGHTS

I want here first to establish what is I think unquestionably the case, that certain captive animals do have rights under British law; and secondly to argue that wild animals in Britain also in some small degree already have legal rights, and that the law as it is provides good reason for its being extended to grant wild animals more

specific legal rights.

If I starve or otherwise mistreat my own dog I can be prosecuted and found guilty of a criminal offence. This surely shows that the dog has a legal right to be treated properly for its own sake, rather than merely as my property. I think this is so even though legal protection often has been a matter of protection as property only, and I understand it is still the case, for example, that a veterinarian's legal obligation to treat an animal whose owner asks him to is an obligation to the owner, not the animal, and refusal, if pursued legally, would mean a civil proceeding for the monetary loss arising from the animal's not being treated (2). It seems that in America a dog still has protection only as the owner's property (3).

Other captive animals also are protected like dogs (in English law) under the Protection of Animals Act 1911. It is surely uncontroversial to see this Act as conferring protection on an animal in its own right, rather than as somebody's property. So again it seems to me that a captive animal has a legal right, if it belongs to you, to be fed and provided with at least the minimum necessities of life, and not otherwise cruelly treated. But an example of how this protection doesn't extend to wild animals is a case in "the High Court last year when it was ruled that a man who beat a hedgehog to death had not committed any criminal offence because the animal was not 'captive'" (4).

Most British wild birds and several wild mammals, reptiles and amphibians are now protected on conservation grounds (5), but what I want to show is that there is some protection for wild animals on welfare grounds and that there should, by implication of that protection already existing, be some more.

First, several acts contain some protection on welfare grounds, e.g. a 1962 act restricting the use of poison to "small ground vermin", but specially regulating the use of phosphorus, red squill and strychnine, presumably with an implied recognition that even mice and rats are not to be controlled by just any means, or at least that a painful means of controlling them is regrettable (6). Thus there is implicit recognition by the Law that at least certain wild animals have a right not to be cruelly treated, at least without some exceptional reason, which one would think did not include human pleasure. For this, the defence of the sadist, is controlled by the 1911 Act, but only it seems, in view of the hedgehog case mentioned above, for captive (and domestic) animals.

Secondly, a dog has, I suggest, its rights on two grounds: 1) our responsibility towards it arising from our having bought that dog or made a pet of it; 2) the fact that it is an animal with interests such as that of needing food, etc. Were it an inanimate object, or even a plant, our having bought it or taken it into our house and made a "pet" of it would not have resulted in our having a

legal responsibility for it. I, as an individual, can surely hardly recognise my own responsibility to the dog without appreciating that at least a necessary part of my obligation arises from the dog's nature as a living animal, a nature shared in many important respects by all similar animals, all carnivora say or even all mammals perhaps, including all wild carnivores, or perhaps wild mammals. The position is of course exactly parallel to that with regard to a person's responsibility for his own child, but it would be odd to recognise that responsibility and yet feel no, albeit considerably diminished, responsibility towards other children: for example, at least to refrain from injuring them, or to attempt their rescue if drowning.

Thirdly, as a captive animal has rights but a wild one does not, a wild animal must acquire rights at the moment when it is captured (perhaps with the intention of keeping it, as it appears that temporary capture, again from the case of the hedgehog, is not enough to confer legal protection). Acquiring rights at the moment of capture does seem a little ludicrous, for the same reason perhaps as it would be ludicrous to feel responsibility for one's own dog but a complete absence of responsibility - e.g. even to refrain from wantonly injuring it - towards other dogs or similar animals. If the animal's nature is such as to make it appropriate for it to have rights once captured, how can its nature not make it appropriate for it to have some, if lesser or fewer, rights in a free

state? (It could be objected that the wild-living animal can not have any rights because, if it had, we would be under some obligation to protect it from predators. I look at this objection below (in 5.2.2), but will say now that I think it is easy to distinguish between death from a nonhuman predator (or indeed human predator) who actually requires to kill for food, and death or injury caused by a human when it is not a matter of important food or self-defence: such killing or injuring would seem to be excluded by my line of reasoning above.)

I think actually it is clear enough why the protection conferred by the 1911 Act is not simply extended as would seem logical and humane to wild animals. It is because so-called "country sports" would then be endangered. This was stated clearly in a Commons reply by Douglas Hogg (in March 1987) (7). Hence the absurdity that brutal treatment of a wild hedgehog is not illegal.

Fourthly, if the captive animal has a right to be cared for properly, then it must be assumed that it is possible for it to be properly cared for. (Or perhaps more strictly, there can only be a legal obligation upon me to care properly for my dog on the assumption that there is a proper and possible way of caring for it.) But suppose it is a kind of animal which it may not be possible for anyone to keep adequately - such as a blue whale - or an animal which it is at least arguable that no-one is able to keep adequately - such as a killer whale.

In such a case, surely the right of the animal to be

kept properly must include a right not to be kept at all, in fact not to be captured. But if certain animals have a right not to be captured, it seems rather nonsensical for that right not to belong to those animals when in the wild state.

Fifthly, there has been since 1976 an act in Britain restricting the keeping of dangerous wild animals by private individuals (8). Animals listed can be legally kept only with a local authority licence, which will not be granted unless there is evidence that the person concerned can keep the animal in conditions which not only protect the public but also protect the interests of the animal. Animals can only be covered by the Act on the grounds of being dangerous, but there would be clear grounds either for the Act's being extended to allow the inclusion of animals on welfare grounds alone or for the passing of another act with similar restrictions but on grounds of animal welfare alone. Such is brought out very clearly in a House of Commons debate in which an unsuccessful attempt was made to have all New World monkeys (often used by street photographers) added to the list in the Act; the reply from the minister concerned was that after consultation with the appropriate bodies he had decided to include all these monkeys except marmosets, which could bite like the others but had smaller lower canines so that their bite was less severe; i.e., because of the Act's being concerned specifically with dangerous wild animals, marmosets were excluded although there was a

strong welfare case for their being protected as in effect the other New World monkeys now are. The M.P. who was asking for them all to be included was in fact doing so partly on welfare grounds, following complaints from people in Bournemouth and elsewhere who had seen the appalling ways in which these animals were often restricted by their owners (9).

So there is legal protection of captive animals, and protection which I think amounts to, and can be well expressed as, the granting to them of certain rights to be cared for and not ill-treated. And I think there is some legal protection (which again could well be seen in terms of rights) of wild animals, and some considerable inconsistency in the law as it stands in that the degree of protection for wild animals is as limited as it is.

5.2 MORAL RIGHTS

5.2.1 ESTABLISHING MORAL RIGHTS

The existence of certain moral rights of animals seems to me to follow from their legal rights. I have, I think, established that dogs have a right not (say) to be starved. This is embodied in the law. And furthermore, most people, I think, would approve of its being embodied in the law; they would think this right and proper. It is quite easy to imagine some legal right which would not have general support: perhaps the one-time right of clerics to receive tithes. We can distinguish, that is, between legal rights which would be generally supported

and those which would not. We have, as it were, a (non-literal) "court of appeal" beyond the legal right itself (10). And this is nearly all I mean by the existence of animal (or human) rights other than legal rights. Only I want to add that I mean by, say, a dog's moral right not to be starved (which as it were supports the legal right) not only that most people, if they had the matter carefully explained to them, would agree that it is wrong to starve one's dog, and that we would be justified in blaming anyone who did so, but also that I think the "most people" I am referring to are right to take this view; i.e., it is not, in my opinion, a merely arbitrary matter. I think that dogs have a right in (say) Iran also not to be starved by their owners, whatever the majority opinion there, as well as whatever the legal situation, happens to be. But I will leave aside the question of the objectivity or otherwise of such judgements, and stay with the claim that X's having a moral right to be treated in fashion Y means the same (for humans or animals) as "X ought to be treated in fashion Y, and if Z treats X differently, we are justified in blaming Z for this."

I shall attempt to establish three particular moral rights of animals, and will do this simply by seeking to demonstrate that we are inconsistent if we do not recognise such rights in view of similar rights which we would undoubtedly grant (I think) to humans. I take note of Hare's unease about the readiness with which the status

of human rights may easily be damaged by multiplying their number without real justification. Possibly his warning is even more applicable to animal rights (11). But still I think we ought to grant that certain kinds of animals, including their wild conspecifics, should not be hurt, killed, or prevented from living their natural lives without at the least serious justification.

5.2.2 RIGHT NOT TO BE HURT

I am inclined to take for granted that we all accept that animals ought not to be hurt without at least very serious reason. To think all (nonhuman) animals unable to feel pain is really an option no longer open if it ever was: we have seen in the last chapter several reasons for this. Some researchers and sportsmen may regard the lives of certain animals as expendable; so in general do non-vegetarians. But I imagine that very few, if any, would regard the causing of animal pain, or other suffering, as other than very regrettable and to be avoided as far as possible. Frey, while he grants we should not be cruel to animals, is one philosopher who regards animals as incapable of bearing rights, or even having interests. He argues against Singer's position which is that the ability to feel pain is a necessary prerequisite for having interests, and that therefore those animals which can feel pain have interests (12). Frey gives examples to demonstrate that humans who do not feel pain still have interests, so that the ability to feel pain is inessential to the possession of interests.

Frey is correct in arguing that the ability to feel pain is not necessary, but I think wrong in arguing that that ability is not sufficient, for the having of interests. He goes so far as to suggest we have no reason or that Christians have no reason (in terms of their beliefs) for regarding pain as an intrinsic evil (13). Of course pain has a biological function, so that it would seem unreasonable to call it an "intrinsic evil". But the causing of pain to others is quite a different matter, and Frey seems to be confusing the two. When he says that "sin" (such as blasphemy) is not to be committed merely in order to avoid inflicting pain, either upon oneself "or others", he is surely wrong in terms of the Christian orthodoxy he is referring to (14). Is it not orthodox to regard the text "Thou shalt love the Lord thy God and thy neighbour as thyself" as basic to Christian ethics? To inflict pain on others is in itself obviously to disobey this commandment (though there may be justifications in particular cases). Frey's view here seems in its oddness second only to the view he quotes of Geach that "the pains of animals cannot morally be attributed to God, since sympathy with these pains cannot be a virtue to a nature, the Divine Nature, which is in no wise animal" (15). Geach's view that animal pain is of no consequence to God presumably implies that it neither should or need be of consequence to us either; Kolakowski's comment that a "god who is simply indifferent [to human or animal suffering] cannot be the loving God of Christians" seems wholly

appropriate (16).

Frey refers to the "very prominent view of intrinsic value" (a view he does not himself hold) as not something to be argued for but rather just recognised (17). Unlike Frey, I think that pain as something to be avoided if possible, especially to avoid inflicting on others (human or nonhuman) if possible, is precisely something that just has to be recognised, that does not need to be argued for. Gray and another scientist mentioned by Clark claim there is no evidence of animal pain, but this is a different position to hold and, as I have just said, I think worth no more consideration (18). White who has gone so far in the course of defending his experiments in the maintaining alive of disembodied monkey brains as to state that "the inclusion of lower animals in our ethical system is philosophically meaningless and operationally impossible" also assures us that his "brain model" can feel no pain, presumably with the implication both that monkeys can feel pain normally and that it would matter if the isolated brain could (19).

5.2.3 RIGHT TO LIFE

This may seem much more difficult to establish than the right not to be hurt. The latter is, as we have seen, embodied in English law, at least for captive animals; there is, so far as I know, no legal right, except as somebody's property, not to be killed. But there are two points, anyway, I would make:

1) While some biologists of various varieties regard

killing smaller animals - voles and other small rodents, for example - as of no consequence, provided the death is a humane one, this is not the case with animals like gorillas or elephants. I remember an announcement made at a conservation conference about a recent outburst of killing of gorillas for trophies: the concern expressed by the zoologist giving the information was close to the concern one would express about a series of human murders. Those involved in, for example, the culling of elephants tend to regard such an operation as a sickening duty, though sometimes a necessary one (20).

I think it is difficult to see why the life of a wild gorilla should be of obviously less consequence than the life of a human. It seems only reasonable to feel that killing one for no good reason is second only to murder. Of course I express here a western sentiment with which many, perhaps in other cultures or just struggling to exist themselves, would not concur, as Attenborough found (in the 1950's) in Borneo. After the filming of an orang, one of the Dyaks who had helped the film crew asked if they were finished and then shot the animal:

' "Why? Why?" I said in fury, for to shoot such a human creature seemed to amount almost to murder.
The Dyak was dumbfounded.
"But he no good! He eat my banana and steal my rice. I shoot."
There was nothing I could say. It was the Dyaks who had to wrest their livelihood from the forest, not I"' (21).

To anyone who does not understand how Attenborough felt it is difficult to know what to say. But of most people (likely to concern themselves with such matters at all)

who would feel, like Attenborough, that this killing was almost murder, one can ask why we should not feel this about our more distant relations, the other mammals, at least perhaps those which, in a domesticated state like dogs or horses, we would feel a sympathy with. The orang has his life to lead, which presumably gives him various satisfactions and in any case, as others have said, it is all he has: so why should we deprive him of it, or regard ourselves as having any right to do so? And why should we not feel the same with regard to at least other vertebrates and cephalopods (which happen to be remarkably intelligent invertebrates) and, so far as is practicable, act accordingly?

2) If we do not grant a certain positive value to the life of an orang or any other animal (22), but do grant, as I would assume that almost everyone does, that animal suffering is in itself regrettable, then the logically humane course to take would be humanely to exterminate as many animals as possible to end their suffering (as noted by Godlovitch (23)). This absurd conclusion does seem to force upon us the rather obvious supposition that animals ought to be allowed to live their lives as we wish, in most cases, to live ours without being killed for anyone else's pleasure or whim.

5.2.4 RIGHT TO AUTONOMY

I understand by autonomy being in control of one's own life, living it as one wishes to live it without interference. Literally it would mean, presumably, making

one's own laws, which nobody does in as much as we are all born into a culture, a social system, indeed a state with laws we are subject to, not of our making, and there is a limited amount we can do about it. Still less, presumably, can an animal "make its own laws", decide how it is going to live its life, or even make long term plans. Still, it is meaningful to speak of an animal's freedom, even if we just mean by this its being left alone to live its natural life (as I discussed in 3.2). Most of us would accept that people ought to be left alone, as far as possible, to live the lives they choose; they ought not to be unduly interfered with by their fellow men, or by the state, provided that they themselves do not need to be restrained from injuring others (24). I think it is a perfectly proper attitude to feel the same about animals. We saw nothing in chapter 4 to suggest that living its own life is not as important to an animal as living our individual lives is to each of us.

Some have claimed that animals have been put at our service by God, that we have been given dominion (in the sense of a bullying domination) over them. This seems to me a buttressing of our selfishness by religious claims which must require not only that we accept God's existence but that we know his intentions with regard to us. Can such a claim, even to a Christian believer, be taken any more seriously than the assumption, made by some in the Falklands War, that God was on our side, a claim which would obviously strike the Argentinians as ludicrous

whatever its appeal to some of the British? One still sometimes finds the assumption that animals do not share similar rights to ours to living their own natural lives (25).

One reason for feeling that we have no more special right to live our lives than other animals have to live theirs is simply that we had no choice in being born, and no choice in being born human rather than as members of some other species. To some this may seem a ludicrous or meaningless thought, but to be transformed into some other animal has long been a perfectly meaningful theme of literature (as in Ovid, Apuleius, Beauty and the Beast, Kafka's Metamorphosis, even Ionesco's Rhinoceros). The logical difficulties of such a possibility are not my concern here. I think any pet owner may sometimes be struck by the thought: "My dog did not choose to be a dog, just as I did not choose to be a human. It just happened." We "wake up" in the situation of being a certain kind of creature (26). We find we have certain needs; a dog finds itself with other needs (some of them not very different, as I have tried to suggest in the last chapter). This seems to me a good reason for having a respect for other animals' ways of life.

I think, at least, it is civilised and decent to feel a respect for other creatures' lives; to feel they ought to be left alone to lead them. So how can I possibly seek to justify capturing other animals and confining them in zoos? It is, I think, particularly difficult to justify

the capturing, which I will look at in chapter 17. But I do not think respect for animals' autonomy needs to place upon us an absolute ban on our ever keeping them. It should make us hesitate to do so, and refrain unless we have serious intentions and are in a position to keep them adequately. What is involved in this I will be looking at in chapters 9 and 10. I am emphasising the importance of being responsible and serious. This is something close to our experience, especially with regard to other animals or to our fellow humans. One should not, for example, open an advice bureau unless one is confident, and has good reason to be confident, that one can give good advice. We would advise a child, I hope, that he should certainly not collect and keep living creatures from the sea shore unless he were able to set up a proper aquarium for them. Perhaps we should tell him not to take any living thing at all; but at least there is a great difference between taking them carelessly and thoughtlessly and taking them in a responsible way.

To those who would say that animals should not be interfered with at all, I could reply that the reality is that we will sometimes have to interfere, or at least that it will be in the best interests of an animal for us to interfere. But I grant that zoo animals are not normally taken for essential reasons, or to rescue them.

I would also say: recognise just how far it goes if you are seriously proposing that the respect for an animal's autonomy should be absolute. With the possible

exceptions of cats and dogs, it is surely so that none of our domesticated animals chose to be domesticated. So it was an invasion of their autonomy for this to happen; why does it not remain an invasion of their autonomy for us to continue to keep them? Two possible reasons suggest themselves: one is that it is different with later generations, just because it was (some time in the past) their ancestors, not they themselves, who were domesticated. But if this point applies, it would apply to animals in zoos who have been born into captivity, which is true of a great many such animals now.

The other is that domesticated animals have been changed so that they accept their state, or so that they could not now be humanely released because they would not survive as wild animals. This may be so, but, as I shall try to show in chapter 8, I do not think the situations of domesticated animals and animals in zoos are so different; what differences there are are merely of degree, and not in any case very large.

I would say that many domesticated animals give indications that they accept their lot, that they are in a state of wellbeing, and surely this shows that it cannot always be wrong for us to invade another animal's autonomy (which, in essence, we are doing all the time with a domesticated animal).

An absolute application of the right to autonomy would also make improper any training of any animal. But can we seriously think this is so? Is it not obvious that,

for example, guide dogs for the blind, or other working dogs, get satisfaction from carrying out their tasks? Is not this our experience with any trained dog - and any dog needs to be trained in some degree, even though most are not trained to the amazing extent possible with a skilled trainer (27). Such training is an invasion, strictly, of autonomy. If we accept this with dogs, how can we consistently object to it wholly with all other animals? Dogs, though remarkable, are not unique in all respects. But once we grant that in some cases the right to autonomy can be acceptably broken, that the animal is indicating it is happy for us to interfere with it in certain ways, I would reply that I think it is possible for this to be so with relatively wild animals also. I think they can give indications of wellbeing, and acceptance of our interference with their lives. This will be part of my concern in chapters 9 and 10.

But unless we can show that we are providing an adequate substitute for the animal's wild life, for its natural habitat and so on, we should not interfere - I think there is a presumption against the rightness of so interfering unless we can show in any particular case that it is all right (28). I certainly would agree that there is no automatic right of ours to keep an animal in captivity to suit our purposes, whether for entertainment or education (29). We do have to justify any particular case by showing that the animal is in a state of wellbeing or may reasonably be presumed to be in such. As I think,

we can do this by the application of the criteria I examine in chapter 9.

Suppose, for the sake of argument, that it is accepted that a particular animal is in a state of wellbeing in captivity; grant, that is, that it is happy. Are we still infringing its right to autonomy in having it anyway, or in having captured either it or its ancestors? This is a view expressed with regard to humans by Boswell when supporting the claimed defence of the slave-traders that they were rescuing the negroes they captured from an unhappy state of life in Africa, a state in comparison with which that of being a slave was comparatively benign. Boswell's sympathies (unlike Dr Johnson's) were with the slave-traders, but he did have doubts: "...we have no right to make people happy against their will" (30). I am not sure that, even if this applies to humans, it is reasonable to apply it to animals. At any rate, we can say that if we are making the animal happy in captivity then we are offending against its right to autonomy to a much lesser extent than if we are not. No doubt we should not go around trying to make other humans, or animals, forcibly happy; but it is better to do that than to go round making them forcibly miserable.

One important point is that the animal is much likelier, as it happens, to be happy in the wild, living its natural life. So it is better, as a rule of thumb, to respect that likelihood (which we could phrase as our having "no right to make anyone happy against their

will"). In fact to me "happy", unlike "content", suggests "in a state of real and lasting wellbeing which it would make little sense to speak of the being concerned as not wanting". We can hardly meaningfully not want to be happy, or at least hardly want to be unhappy, though we can say as a joke "he's happiest being unhappy". It is perhaps part of the concept of happiness that you want it. John Benson suggests we would not choose happiness if it involved our being (say) drugged so that we would cease to be concerned by whatever worries us at present. But I do not think I would use "happy" for such a state; "content" perhaps (31).

Chaucer (see 1.1) was not concerned with what one might call a "metaphysical" right of the bird to be free, even if thus unhappy. He simply says the bird would be happier in the forest, even though that environment does not appeal to us, and that the evidence for this, or at least for the bird's dissatisfaction with life in the cage is that, given the opportunity, it will escape from its present situation. If we can provide conditions it would not escape from, even given the opportunity, then perhaps all is well: the bird is registering satisfaction with its situation. I shall consider not trying to escape as a partial indicator of wellbeing in 9.5 below.

I also think that an assessment by us of the advantages and drawbacks of living in the wild is of some relevance. The slave-trade and slavery were in fact vile, and life on the west African coast in fact quite decent.

But it could have been different (32). This is not to say that having slaves, or taking slaves, would then have been justified, but it certainly would have been a much lesser moral offence (33). An attempted assessment (of the quality of animal life in the wild) would not (whatever its findings) provide any justification for keeping an animal in poor captive conditions, and it is true that conditions in the wild are not our responsibility. But it could alter our assessment of what we were doing to the animal in keeping it in captivity. I shall attempt to compare wild and captive conditions in chapter 7.

At least recognising the animal's right to autonomy is a challenge to us; it puts an obligation on us to provide good conditions.

5.3 A NOTE ON UTILITARIANISM

I say little of utilitarianism in my argument, preferring on the whole the language of rights. This is partly because the latter makes clear that we should be concerned about each individual animal or human in a way in which utilitarianism sometimes seems not to, though it is important to recognise that utilitarianism can provide a powerful moral framework for showing how unjust our treatment of animals is, as in Singer's Animal Liberation (34).

It seems to me that a kind of debased utilitarian reasoning is perhaps being attributed to zoos in a statement I came across recently (35). This was that, "Accepting that animals are deprived of their natural

environment, zoos now argue that the suffering of a few is worthwhile for the greater good of conservation" (A). The anonymous author then objects to this argument on the grounds that zoos, "by taking massive numbers of wildlife from their homes in the past and the present, have endangered many species; perhaps causing the extinctions of a few" (on which see my comments in chapters 2 and 13), and can at best help to save only a very few species, at a large cost (which reasonable points I attempt to deal with in chapter 13). I do not think that any zoo spokesman would assent to statement A, but in any case I want to make clear that I do not advocate such a view myself. I suppose a defence of statement A could be attempted on the following lines. First, we observe that the total of human happiness (or perhaps general wellbeing) would be maintained by preventing the extinction of, say, the cheetah species. We could include in the total of happiness (or wellbeing) not only that of humans but that of the surviving cheetahs (and of future cheetahs) as well. Then we argue:

i) the right course of action is what produces the highest total of happiness;

ii) there are only a few cheetahs in zoos, but those there are are helping to save the whole species, and thus produce a high (partly future) total of happiness;

iii) their own small ration of happiness, or rather of suffering (for animals suffer in zoos, the leaflet says), is small by comparison to the total happiness, and

therefore justified.

This argument is to me unsatisfactory because it unjustly dismisses the claims of certain individual cheetahs - those in zoos - for proper treatment. Obviously their wellbeing, their happiness, is as important as that of any other cheetahs, and, unless at least the interests of the two parties clash unavoidably, as the wellbeing of humans too. We cannot waive certain individuals' claims in favour of some other individuals' wellbeing, as if the latter made up for the former's suffering. And therefore, as I stated in 1.3, I think that the major justification for zoos must be the claim that their animals are in a state of wellbeing (9a in my list of possible "defences" in 1.3). We might still think that the causing of some privation to certain animals was justifiable if there were great benefits to others, especially members of the same species. But I think there would be severe limits to the extent to which we could properly act against the interests of the individuals concerned.

It is true that zoos sometimes have to cull, even though I would hope regretfully. But this is not a matter of causing avoidable suffering, but humane death; this is still indeed regrettable, but much less so than substantial suffering (36). I shall look further at the question of culling in chapter 13. I will just add now that it is actually difficult to show humane killing to be wrong on utilitarian principles, because although the death lessens the total of happiness it also decreases the

relevant population by one. Singer suggested humane killing of an animal without self-consciousness was "counterbalanced by bringing into existence a similar being which will lead an equally happy life". This highly counter-intuitive suggestion has been criticised by Lockwood (37).

I have emphasised that the conservational argument for zoos should not be seen as involving a) that animals suffer in zoos, and b) that this suffering is justified in the higher cause of conservation. Still worse, I think, would be to justify any zoo occupants' suffering by the gains in human visitors' happiness. The unjustness of this would be magnified by the comparative unimportance of the human visitors' gains. I do not in fact think what visitors to zoos can gain is unimportant, as I shall try to show in chapters 15 and 16, but I do not think, as I have already made clear, that it is important enough to justify causing suffering to the animals concerned. Their wellbeing is paramount, and how we should endeavour to assess it and do our best to ensure it, I shall look at in chapters 9 and 10.

5.4 OBJECTIONS TO ANIMAL RIGHTS

I must now consider some possible objections to the view that we should regard any animals as having rights.

5.4.1 CLAIMING RIGHTS

McCloskey has argued that no animal can have legal rights because a possessor of such rights has to be able

to claim them. I think dogs and even more cats, possibly, can be extremely good at, in effect, claiming their right to be fed, but it is true that they do not consult solicitors or complain to the local council. However, as Stone makes clear, corporations, infants, incompetents, etc are not prevented from claiming by being unable to speak, because they are represented by lawyers (38); I note that recent court rulings about the sterilisation of a mentally retarded girl "were challenged by the Official Solicitor ... acting as her legal guardian" (39). There seems no reason why it should be impossible for a lawyer to make a claim on behalf of a nonhuman animal.

5.4.2. PROTECTION FROM PREDATORS

Ritchie argued that if animals had rights, we would have to protect prey from predators (40). Rachels mentions a reply by Plamenatz, the suggestion that animals perhaps do not have rights against their natural predators because the latter are not rational (and could not appreciate such things) but still do against us, who are rational beings (41). I agree with Rachels' comment that perhaps one animal can in some cases have rights against another. It seemed to me a dog and cat of ours normally quite clearly respected each others' rights to the contents of their respective food dishes. But in any case it is not a matter of predators' being rational or nonrational, moral, immoral or amoral. They just have to catch their prey to live (as I observed in 3.1). It seems hard to regard it as any kind of moral failing in a wolf not to put the rights

of mice to survive before his own right to do so (42).

It is true that there could be an obligation on us, unlike wolves or cats, not to kill other animals for food. But this is not simply because of our being rational beings, but because, being rational (in as much as we are), we can appreciate how little most of us need to eat meat as much as we do, that there would be more food available for the starving millions if we did not eat meat, and also that, not being necessarily carnivorous like a cat, it seems selfish for us to kill other sentient beings unnecessarily (43).

In some human situations it is probably necessary to eat meat, but furthermore it might have been the case that we all had to. Suppose we had happened to evolve in such a way that we could not live without meat, even without eating the meat of a near-human animal such as the chimpanzee (44). If this had been so, then we should still have recognised the unfortunate side of having to kill chimpanzees; the moral thing to do would have been to kill them with regret, with a determination to kill as few and as humanely as possible, and to stop doing so completely if it ever became possible. It was a situation very like this in the early 1950's when chimpanzees were used in the preparation of polio vaccine (45). I do not say that this use of chimpanzees was necessarily justified or right, but I do think a reasonable case could be made for it on grounds of virtual human necessity, however regrettable. (The present use of chimpanzees for AIDS research poses a

very similar moral problem.) It is important to see that rights can conflict, as Stone makes clear (46). Where this happens we just have to make the best decision we can in the light, as far as we can manage, of all relevant considerations.

5.4.3 OWNING PROPERTY

McCloskey claims that animals' inability to own property prevents their having rights (47). I would agree with Rachels' reply, and with Clark's, that animals do seem able to possess property (48); Locke's view, that animals have a right to the fruits of their own labour, has much to be said for it (49). It seems to me to apply to humans. I do think that if you have worked on something, and also indeed have ability, etc to appreciate it or use it properly, this does give you (in some degree) a right to it over against someone who has not put anything into it, or is incapable of appreciating or using it. ("It" here could be almost anything from fine wine to cricket grounds, from violins to the Amazon forest: see my discussion of conservation and stewardship in chapter 11). I do not see why we should not feel the same about animals and what they need, or even, possibly, appreciate. If a dog with a bone does not regard himself as owning it, and can not be regarded as laying claim to it, then I am not sure what would amount to a claim. Perhaps horses would not guard their rugs (an example of McCloskey's), but taking bones from dogs is not usually to be recommended even with dogs you are friends with. Similarly it seems

quite likely that leopards put their kills up trees in order to make it more difficult for other predators to take them.

5.4.4 RECIPROCATING OBLIGATIONS

It may be argued that animals can only have rights if they are capable of respecting the claims of others (50). I agree with Rachels that as severely retarded humans are not regarded (quite properly) as having no rights because they are unable to respect other people's, there seems no reason why animals should be dispossessed of the ability to have rights even if it is the case that they in no way make contracts with us or with each other. But I wonder if they do not. I recall accounts of predators such as foxes refraining from molesting rabbit residents in the same burrow, almost as if they respected the rights of their neighbours; similar behaviour is not unknown at East African waterholes. But also, I think a nonhuman animal can regard himself as under an obligation to us, as with a tame dog who protects us, e.g. in the tragic story of the faithful dog killed in error by his master before he had realised that it was a wolf, not his own dog, who had killed his child, and that the dog had bravely tackled the wolf, or in a recent newspaper account of a dog losing his life in an attempt to rescue a child from a burning house (51). Even the unsentimental French awarded some of the carrier pigeons used at the Battle of the Somme with the Croix de Guerre (52). I think a dog's demonstration of affection and obligation towards us could reasonably

increase our own sense of obligation towards him, so that there is almost an implicit contract between dog and human.

NOTES TO CHAPTER 5

1. C.D. Stone, Should Trees Have Standing? (Los Altos, California: Kaufmann, 1974), pp 16, 40, 41 and passim.
2. A point made by Roger Ewbank of UFAW in a paper, "The veterinary profession: service to animals or service to society?", at a Society for Applied Philosophy Workshop on Ethics in Veterinary Medicine, Glasgow University, 7 March 1987.
3. B.E. Rollin, Animal Rights and Human Morality (New York: Prometheus, 1981), p 77.
4. The Times, 4 March 1987. See also S.R.L. Clark, The Moral Status of Animals (Oxford: Clarendon, 1977), p 93.
5. Wildlife and Countryside Act.
6. Other examples:
a) The Firearms Act (1968) bans the use of shotguns or airguns by those under 14, and the use of shotguns without a licence, presumably partly for humane reasons, i.e. the prevention of suffering from inexpert shooting.
b) The Deer Act (1963) bans the use of traps and snares, surely at least partially for humane reasons.
c) The Conservation of Seals Act (1970) bans weapons except rifles of specified muzzle velocity, mainly or totally, surely, for humane reasons.
d) The Pests Act (1954) forbids the spreading of myxomatosis, I would think partly for humane reasons, and the use of the gintrap, clearly for humane reasons.
7. The Times, 3 April 1987, p 4. Mr Hogg's words included: "The question is whether we can extend the protection under the the 1911 Act without at the same time putting at risk legitimate country sports. I will not support measures which will put those at risk."
8. Dangerous Wild Animals Act (1976).
9. Weekly Hansard (Parliamentary Debates) No 1317, HMSO, pp121-128 (debate on 2 July 1984).
10. I think I am close here to the position taken by T.D. Weldon, The Vocabulary of Politics (Harmondsworth: Penguin, 1953), pp 58 and 59 particularly.
11. R.M. Hare, "What is wrong with slavery?" in P. Singer (ed), Applied Ethics (Oxford: OUP, 1986), pp 165-166.
12. R.G. Frey, Interests and Rights, The Case Against Animals (Oxford: Clarendon, 1980), chapter XI.
13. Ibid, p 161.
14. Ibid, p 162.
15. P. Geach, Providence and Evil (Cambridge: CUP, 1977), quoted by Frey, op. cit., p 161 n.
16. L. Kolakowski, Religion (London: Fontana, 1982), p

56.

17. Frey, op. cit., p 160.

18. C. Gray, "Meaning of pain, death and consciousness", Downside Review 79, 1961, p 189 ff and a biologist, both mentioned by Clark, op. cit., pp 42 and 38.

19. R.J. White, "A Defense of Vivisection" in T. Regan and P. Singer (eds), Animal Rights and Human Obligations (Englewood Cliffs: Prentice-Hall, 1976), p 169 and pp 167-168. For further information concerning White's work, see G. Rattray Taylor, The Biological Time Bomb (London: Panther, 1969), pp 128-131.

20. As I recall, the report about the killing of gorillas was made by Dr Colin Bertram of St John's College, Cambridge during the Second World Conference on Breeding Endangered Species in Captivity at London Zoo in July 1976; for the elephant comment, see I. Parker, Ivory Crisis (London: Chatto and Windus, 1983), pp 67-68.

21. D. Attenborough, Zoo Quest for a Dragon (London: Pan, 1957), p 109.

22. A value it seems that D. Little ("Whales and Ethics", Principal Address at Whales and Ethics Symposium, Washington D.C., 11 April 1979) would not grant to the lives of whales.

23. S. and R. Godlovitch and J. Harris (eds), Animals, Men and Morals (London: Gollancz, 1971).

24. To communists or others who may not accept my view of freedom, I would only say: if you think people ought to be free, there is no good reason why you should not apply this to animals also; if you do not think this about people, that is another matter which I can not go into here.

25. E.g. Stewart Lamont, "No such thing as animal rights", Glasgow Herald, 1 Aug 1987, well answered, I think, by letters from G. Hart and J. McGuire, Glasgow Herald, 5 Aug 1987.

26. Cf. S.R.L. Clark, The Nature of the Beast (Oxford: OUP, 1982), p 1.

27. See V. Hearne, Adam's Task (London: Heinemann, 1987).

28. D. Jamieson, op. cit. (chapter 1), p 109.

29. V. McKenna, "Past, Present - Future indicative" in V. McKenna et al, Beyond the Bars (Wellingborough: Thorsons, 1987), p 34.

30. J. Pope-Hennessy, Sins of the Fathers, The Atlantic Slave Traders, 1441-1807 (London: Sphere, 1970), p 33.

31. J.H. Benson, "The Fall of a Sparrow: how much should animals call for?", paper given at a meeting of the Association for the Study of Animal Behaviour, Durham University, March 1980.

32. Pope-Hennessy, op. cit., p 33 ff; according to P. Fryer, Staying Power: The History of Black People in Britain (Pluto, 1984), reviewed in The Sunday Times, 13 May 1984, until the start of the slave trade, slavery in Britain was not brutal; most slaves were employed in houses and were better off than most British.

33. Hare, op. cit., offers a model of a state of "ideal" slavery, but shows it still to be unsatisfactory.
34 P. Singer, Animal Liberation (London: Paladin/Granada, 1977); see also S.R.L. Clark, "How to Calculate the Greater Good" in D. Paterson and R.D. Ryder, Animals' Rights - a Symposium (London: Centaur, 1979), pp 96-105.
35. I quote from a leaflet called "A Day at the Zoo" produced by the Glasgow Vegan Action Group.
36. However it is relevant to consider the significance of an example raised by Adam Morton at a meeting of the Society for Applied Philosophy at Glasgow University, March 1987: our discrimination between a child and an animal in that we would consider killing the animal, but not the child, to avoid causing excessive pain.
37. P. Singer, "Killing Humans and Killing Animals", Inquiry 22, Nos 1-2, Summer 1979, pp 145-156, espec. p 151; M. Lockwood, "Singer on Killing and the Preference for Life", ibid, pp 157-170, espec. p 167.
38. Stone, op. cit., p 17; for an apparent demonstration that animals have no legal rights, see J.O. Nelson, "Brute Animals and Legal Rights", Philosophy 62, 240, April 1987, p 171 ff.
39. The Times, 3 April 1987, p 1.
40. D.G. Ritchie, "Why Animals Do Not Have Rights", in Regan and Singer, op. cit., pp 181-184, espec. p 182 ff is discussed by J. Rachels, "Do Animals Have a Right to Liberty?", ibid, p 219 ff.
41. Ibid, p 221.
42. See F. Mowat, Never Cry Wolf (London and New York: Ballantyne, 1971), p74 for the discovery that the wolves he was studying were living on mice (and p 80 ff for his dedicated controlled experiment on himself to demonstrate that a large mammal could subsist on such a diet).
43. See Singer, op. cit., p 169 ff for a clear account of how the West's excessive meat-eating wastes food.
44. I see this as a fanciful extrapolation of a situation which existed until recently with Vitamin B12, which does not occur in plant tissues, and a lack of which in humans can cause pernicious anaemia (G.H. Bell et al, Textbook of Physiology and Biochemistry (Edinburgh: Livingstone, 1968), p 477 ff). I believe Bernard Shaw, a lifelong vegetarian, developed anaemia and had to eat liver, on medical insistence, to save his life.
45. See D. and R. Morris, Men and Apes (London: Sphere, 1968), p 171 for an account, and a rather premature comment from L. Harrison Matthews on how this signalled the end of any popular support for the antivivisection cause.
46. Stone, op. cit., p 10.
47. H.J. McCloskey, "Rights", Philosophical Quarterly 15, 1965, p 126, quoted by Rachels, op. cit., p 219.
48. See S.R.L. Clark, "The Rights of wild things", Inquiry 22, Nos 1-2 Summer 1979, pp 171-188 for a full discussion of Ritchie's argument.

49. Locke, Second Treatise of Government, discussed by Rachels, op. cit., p 208.
50. Ibid, p 221.
51. Reeve, op. cit. (4.2.1, note 38).
52. J. Cooper, Animals in War (London: Heinemann, 1983), p 75.

Chapter 6

CRUELTY AND DOMINATION

It has been claimed that the primary motivation behind zoos is "our need to dominate" (1) and that the sight of animals in zoos, at least that of a solitary gorilla or "the large carnivores", conveys "first and foremost just one message, and it is about power. [These sights] proclaim that we men are strong enough to keep our enemies in cages" (2). I think these assertions are very likely partially true, but only partially. I shall try in this chapter to establish the truth of the three following assertions:

i) that the urge to dominate, to have, and show that one has, power over others, is (to put it of course rather vaguely) an important part of human nature;

ii) that this urge very likely does in some cases lie behind the capture of animals and behind the keeping of them in captivity;

iii) but that to regard this urge as the major motivation of all wild animal keeping is a great and misleading exaggeration.

I wish also to consider cruelty, which I think is related to domination. It has often been claimed that certain cases of animal keeping are cruel. I accept that

some animal keeping can be cruel, and I do not think anyone concerned with zoos or perhaps the keeping of animals in any institution would dispute this. What I seek to establish here is:

iv) that human nature (again to put this vaguely) has a tendency towards cruelty;

v) that this tendency is related to (many) humans' urge to dominate;

vi) that this tendency can express itself in the capturing and keeping of animals;

vii) but that to regard all animal keeping or even all wild animal keeping as cruel, still less as all motivated by cruelty, is a great and misleading exaggeration.

I shall start by considering cruelty. There is a slight ambiguity in the term. It can mean, roughly, any of the following:

a) Causing substantial suffering to another unnecessarily and unjustifiably.

b) Causing substantial suffering to another unnecessarily and unjustifiably, and taking pleasure in so doing.

c) Causing substantial suffering to another necessarily or justifiably.

I shall use it to mean either a) or b); it will in fact be part of my thesis that b) often is the correct meaning (though of course difficult to establish, in that we cannot be certain of someone's motivation); I shall leave aside c), merely noting that we do sometimes use "cruelty" in this sense, as in the expression "cruel to be kind", or

perhaps to describe a painful treatment which a doctor sometimes has to prescribe in the interests of his patient.

It is impossible to dispute, I think, that much cruelty in sense a) or b) has been practised throughout history and still today. Perhaps the most despicable form of cruelty is the torturing of other humans. This became commonplace again in Europe in this century after virtually disappearing in recent centuries (3). The intentional causing of pain to other humans is on occasion such as to be beyond belief (4). So also is the causing of pain to other animals, as in the vivisections (last century) performed without anaesthetic by such biologists as the great French physiologist Bernard, his predecessor Magendie, and Charles Bell (in the course of establishing the course of the spinal roots in the nervous system in mammals), in much research and product testing in more recent times, also in various forms of hunting and trapping, and in apparently gratuitous hurting of animals (5). Examples of obvious cruelty in animal keeping in recent times are given by Batten and by Jordan and Ormrod (6).

Now one thing that is strange about all this cruelty is that it seems so foreign to the nature of most of us. Most of us do not go about hurting each other, or not at least wantonly. More than that, many of us probably cannot even imagine being able to hurt another being, still less actually wanting to do so, in the ways briefly referred to

above. Victor Sylvester reported the horror he experienced at being forced to form part of a firing squad in the First World War (7). Many of us, as we say, "could not hurt a fly", though there is experimental evidence that ordinary people under the orders or directions of an apparent "expert" or scientist will cause extreme pain to others (8). But I imagine that, just as members of other species do not go around normally injuring (or killing) each other (and it seems likely that they must be normally inhibited for evolutionary reasons from doing so), so must humans be normally inhibited from hurting (and killing) each other; we are at least capable of being moved by pleas for consideration, which is part of being a social animal (9).

An interesting question thus arises about cruelty, or rather about violence (10) which, like most people no doubt, I regard as sometimes justified and as not then cruelty (this being, I think, the term's normal usage). When we are violent, are we enabled to be so by some ability to "switch off" our normal inhibition? Are we that is, as it were, "desensitised"? Or do we experience a positive enjoyment of what we are doing? Clearly some people, whom we call sadists, do enjoy being cruel (11). What I wonder is whether most of us, when we are required to do some violent act, succeed in what would otherwise be impossible by finding a pleasure in it. Mere switching off seems not enough to explain how ordinary, decent people can bring themselves to bayonet enemies; one of the expert

witnesses at the 1875 Royal Commission of Inquiry into Experiments on Animals (George Rolleston, Professor of Physiology at Oxford) quoted approvingly words of Kingsley about "the sleeping devil" awakened by gladiatorial slaughter, and recounted soldiers' accounts of how "the sight of blood upon the gauntlet 'wakes all the devil up in them'" (12). Perhaps even surgeons need a touch of sadism to do their work (13). (Rolleston also mentioned the effect of just getting used to pain-causing, etc, which is very important to remember.)

I am here considering how people are able to perform positive acts of violence (sometimes for the highest motives, as with a surgeon); in such situations they must be aware of what they are doing. Many acts of cruelty are perpetrated by people who probably ignore what they are responsible for because they do not see it, and they can forget it (14). We do seem to have a great ability to forget what is inconvenient to us, and another ability, in some ways creditable, that of being unwilling to accept the reality of something unpleasant if we do not wish to believe it - normally this would apply to something we are not actually seeing, but sometimes we may just not pay attention to the clear evidence of our senses - and especially if it involves accepting something unpalatable about someone we know or respect.

Another way in which we are enabled to commit actual violence, or simply be unmoved by cruelty of some kind, is by "compartmentalising", by which I mean simply

classifying people, or animals, into different slots, either those who matter and those who do not, or those whom we like and those whom we do not, and, especially, those who belong to our group and those who belong to the "others", the enemy, the other camp (15). (Terrible as it is to kill or hurt those of another group, it is even worse to treat thus members of your own (16).)

I think probably that cruel acts of animal keeping are mainly a matter of neglect, of people ignoring what they should be attending to. As an example of how inappropriate I think it is to dismiss all animal keeping whatever (or even all wild animal keeping) as cruel, I would draw a contrast with hunting. A book on aquarium keeping issues the warning that, if one has to catch up a fish, one must, above all, avoid "chasing" it round the tank because of the stress this causes to the fish. If this advice is correct, then pursuing a stag or a fox must be a process of extended stress-causing and thus cruel. But the whole point of the advice to the fish-keeper is to get him to avoid unwitting cruelty; Roots gives similar advice about avoiding stressing birds if they have to be held (17). I accept that avoiding causing stress is not everything; keeping birds or fish may in itself be cruel (though I hope that chapters 9 and 10 will amount to an extended demonstration of how this need not be the case, and never should be). But at least it should be obvious that we are in a different world from that where obvious cruelty is being performed; proper animal keeping should

involve the greatest consideration for the animals concerned. Examples of animal keeping such as -

> "The bear in an indoor cage four metres by three; the solitary monkey chained within its concrete pen; birds so confined that flight is impossible; the jungle cat crouching in the doorway of its wooden box inside its tiny concrete cage" -

clearly merit full condemnation. One point of my brief discussion of cruelty has been to emphasise how humans can be cruel, and the possibility of this with regard to animals as well as other humans, needs to be rigorously guarded against. This is why there is a need for legislation to control animal keeping, for inspections, and a place for welfare organisations with a special interest in zoos, nobody being infallible (18).

I have already said that I think cruelty is related to domination or power seeking. Unlike cruelty however, I think that the urge to dominate is in itself probably an essential part of human nature. I do not mean by this, obviously, that all humans wish to, still less can, dominate others (though perhaps we all dominate someone or, failing that, the dog (19)). I do think that some people as a result of their genetic inheritance have a greater or lesser degree of both ability and desire to dominate others. Genes controlling dominance are part of the human gene pool. I think, in other words, that in some degree leaders are born, not made, and I also think that to some extent leaders are necessary. A trivial example I have mentioned before would be the observation that, when

two people go for a walk, one probably decides where they should go and the other falls in with this. It is, I think, common experience, and an obvious lesson of history, that strong leaders are often a good thing, and at least appreciated by those they lead. People like having strong, or just obvious, leaders. To believe that human dominance (i.e. of one human over others) is partly genetic is to believe that it is part of human nature, that it is not a product of human culture (or not of culture alone). It does in fact seem to me that we are, in a general sense, hierarchical animals (20). We take easily to being arranged, culturally, in hierarchies, I suspect, because we tend that way genetically to start with. Of course all our positions of authority are cultural phenomena but, to a great extent, it is people's genetic makeup that renders them effective or not in those posts. It seems to me, too, that our being hierarchical is something that links us to many other mammals like chimpanzees, dogs and elephants. I am not suggesting that we have rigid peck orders (and many other species do not have them either). Other animal leaders have to assert themselves to win power and may fail to do so. I think that the roles of being dominant and being submissive in relation to fellow humans are inherited from our mammalian ancestry. I stress this because I think that it is our own animal nature that enables us to fulfil a dominant role with regard to an animal of a different species.

However, whether or not this is so, it is obvious

that humans do go in for leaders. What connection has domination by a leader to do with cruelty? Surely an obvious factual one. A great deal of cruelty is perpetrated in the process of asserting political power by totalitarian leaders (21). Perhaps we need leaders just as, as I have suggested, any human institution, even the local bridge club, is likely to. But why are they so anxious (some of them) to exert power, and even when many of those controlled are so bullied, so silenced, that they canot even express free appreciation of their leaders? The urge for power seems to need some explanation within man's psyche – or his genome. But anyway, this urge to exert the utmost control over others leads to the infliction of a great many cruelties. So here at least domination results in cruelty, as also in religious persecution in Britain and western Europe in the past, and elsewhere in the world, including Eastern Europe, today. So, as we know that cruelty often is perpetrated in the course of political domination, it seems quite likely that it will sometimes be perpetrated in the course of the more minor domination that is almost bound to occur, I think, throughout human society. (Hence, of course, the bullying in schools which we all know of; this was particularly bad in the old public schools, but of course it can happen in any.) So I am inclined to see cruelty as an extension of dominating, an excessive and of course I hope avoidable extension. People can enjoy dominating; they can also enjoy cruelty. And one can only be cruel to someone (human

or animal) that one has in one's power, that one is in a position of domination over. Cruelty can show our dominance. I would also add that not only dominance but submissiveness too can be satisfying to us, whereas no normal person is going to enjoy being the victim of cruelty. So domination does not necessarily involve cruelty. I think also a need to dominate to some degree is perhaps an essential in almost any achievement. It is like the need to be selfish in some degree to get anything done. No doubt this is connected with what I think is a certain necessary ruthlesness in public life. I think sometimes a sort of Machiavellian approach is forced on any of us. Machiavelli was, above all, a pragmatist, and we have all to be this to some extent (22).

Now there is a dominating streak in the keeping, and still more in the catching of, wild animals. The first elephants to appear at Rome were in a triumph (see chapter 2 above); they were (or at least were presumably thought of as) defeated enemies. I have already mentioned (in 3.1, on Wildness) the way of thinking in which wild animals have been thought of as needing taming or subduing. This clearly goes hand in hand with the attitude of regarding primitive peoples as similarly needing subduing and civilising: precisely the spirit of imperialism. Again, the success of empire is well demonstrated by bringing home the spoils, which may include subject people themselves, and subject animals. This is one element of meaning in the very word "captive" as we saw in the

section on Captivity in 3.3. It is perhaps no coincidence that the great days of the London Zoo coincided with those of empire. At least the far-flung realm could both bring impressive beasts from afar and, by so doing, emphasise its own extent, as had equally been true of Rome (though Rome's treatment of its animals was of course appalling where the London Zoo was by intention humane and scientific, however imperfect by today's standards). Certainly the spirit of empire is arrogant, though some empires (including, one hopes, the British one) bring some good to their subject peoples (and as the Roman Empire did, it would generally be agreed, I think).

And so perhaps also the "message" Mary Midgley speaks of (see above) as being conveyed by Guy the gorilla and large carnivores can be there: "How powerful we are; we can keep these animals captive." But one limitation in the extent of that message is at once suggested by the animals Midgley selects: gorillas and (say) lions and tigers. These are large and powerful and (traditionally, anyway) fierce. So indeed by keeping them we may be boasting of our power. And of course it is no coincidence that lions and tigers, and elephants, were the kind of animals especially prized by past rulers (as we saw in chapter 2). But then merely having them as status symbols, if they are well looked after, is surely fairly innocent; as innocent as the activity of the man who keeps an alsatian as (partly) a status symbol, but also looks after it properly. To be a status symbol if it is cared for no more

harms the animal than a Rolls-Royce is harmed by being a status symbol. (See my comment on status symbols in chapter 16.) But I think of a photograph of a bear being presented to the President of Israel in Switzerland. This animal was clearly no more being valued as a symbol of human domination than was a bear at Whipsnade which C.S. Lewis obviously appreciated (23). I do not say bears ought necessarily to be given as state presents, or even necessarily kept at all. But to say that bears when they are seen in zoos are primarily conveying merely a message about human power is ludicrous. They may be demonstrating a false human enjoyment of what we like to regard as cuddliness; they may be demonstrating a misjudged keeping of animals which should not be kept. But they are not merely being appreciated as real or symbolic victims of human power, no more than are the biffalo-buffalo-bison and the great big bear with wings of A.A. Milne's verses "At the Zoo". And what I am denying about bears is even less likely to be true of rabbits or lemurs or bushbabies or camels or a host of other animals to be seen in zoos. And again, to say that the power message is the predominant one in the sight of gorillas at Jersey or Howletts, or tigers at Whipsnade or even (I suggest) Glasgow just does not ring true, mainly because these animals are obviously being cared for; they are not being treated as "captives". No doubt Mary Midgley sees the bars surounding the gorillas or lions, and perhaps other prison-like conditions, as partly conveying the power

message, plus the identity of the actual animal confined. She may be right in suggesting that it is an assumption that such animals are subject to us, that we have a right to dominate them and keep them captive, that makes us regard such exhibits as acceptable. This is a tendency in the term "wild" I have already noted (with help from Mrs Midgley's own writings). If so, I agree with her that we must root out such assumptions from our thinking, just as we must root out, I would agree also, our practise of keeping gorillas, lions or any other animals in "cages", if by this we mean enclosures of a prison-like nature which do not cater for their needs. As I have said before, bars themselves are not necessarily a harmful feature of an enclosure, but they can go hand in hand with properly objectionable features such as concrete floors, barrenness, a minimum of cage furniture, etc. If Midgley replies that I deceive myself in supposing that any enclosure, call it what we may, can cater adequately for the needs of a gorilla or a lion, then my answer is contained in chapters 9 and 10. I say "Let us judge each case on its merits; let us try to avoid preconceptions." Some animals may well be entirely unsuitable for keeping; if so, of course we should not keep them. But it really does not seem to be the case that all wild animals are unable to be kept satisfactorily (from their point of view, not just ours) in captivity.

If the gorilla is primarily showing our dominance, then are budgerigars doing this also? And even when they are kept by a champion shotputter, Geoff Capes, who would not seem to need to demonstrate his dominance and power as a human primate? (Mr Capes commented about his interest:

"...it's the absolute opposite of what I do in my own sport in terms of aggressiveness. You can't be noisy and loud with budgerigars..." (24))

And if not, then this shows that, while Midgley's point may be true of certain impressive beasts, it is by no means true of all the animals that people keep. And I am sure that, different as the roles of zoos are today in many ways from private keepers, especially the members of the various "fancies", there is no absolute difference between them in their major motivation for keeping animals - the basic attraction and interest of doing so.

There is however an important point about domination that needs to be sorted out. I have disputed Midgley's judgement that animals kept in zoos are primarily demonstrating human domination. But at the same time I do not at all dispute that human domination plays a large part in the management of various animals, such as dogs. I do not think that to dominate a dog, as must be done for successful training, even for survival (25), is improper or unjust, and this is so because the dog clearly flourishes in a regime in which he is "dominated", kept in order, like children in school, which I think many psychologists as well as teachers and the children

themselves will explain they prefer; they want to be controlled (26). In my opinion (as discussed later), an elephant keeper has to dominate his elephant, though in an acceptable way, a way which goes hand in hand with a personal relationship with the animal, in order to control her; and this is something equally true of elephant keepers since ancient times, and in India and the east as here. (This is why it was significant that the "mahouts passed into the Roman service"; see chapter 2 above. Only their own mahouts would be able to control the elephants, Romans or no Romans.) Similarly with big cats such a relationship is possible. (Of course it can develop into the circus trainer relationship but the rights and wrongs of this are not my concern here.) Of course this man-to-man, or rather man-to-animal, domination can be taken too far; but this, which is a psychological relationship, is something quite distinct from the sort of domination Midgley is speaking of. It is an essential part of the management of certain animals; and it is closely akin to our dealings with other humans; and (I would maintain) we are enabled to do it because of our own primate nature, which includes a tendency towards domination (and submission) within it.

My last point concerns the fact that domination is indeed something which we must control; it must not go to the length of becoming bullying. It is because domination is a feature of human nature that we must keep a check on it; we must beware of letting it get out of hand, with

humans or other animals. But there is no reason to regard this tendency towards an improper domination as the exclusive preserve of animal keepers (and established rulers). It is common experience that an excessive domination, even developing sometimes into the use of appalling cruelty, is a feature of reformers, of idealists. So much is obvious from a reading of Darkness at Noon. Communist states are intended to achieve a new fairness and justice; but somehow they become police states. It is also obvious enough that the fine cause of animal liberation can become a fanatical and even violent movement. It can attack very improper targets, as in the release of animals from Palacerigg, a country park near Glasgow built up by a leading Scottish naturalist, David Stephen. Far be it from me to suggest one should therefore avoid trying to reform, and it is indeed clear that the organisation Zoo Check, for example, is entirely peaceful and law-abiding. And yet, there is still a danger, not of course in trying to reform, but in being prepared to over-state one's case, to brand one's opponents as villains, to use publicity uncritically, to twist the truth subtly to suit oneself. Shakespeare was well aware of the forces which could be released by a skilful piece of mob oratory, and how those forces could be uncontrollable, could attack the wrong target. He indicates this in some words of Antony after his "Friends, Romans, countrymen" speech following Caesar's assassination in Julius Caesar. Antony, once the mob has

been aroused and is away, comments:

> Now let it work: Mischief, thou art afoot,
> Take thou what course thou wilt.

And Shakespeare at once shows us the mischief doing just that: it attacks the innocent poet Cinna, who has the misfortune to have the same name as one of the conspirators, and to be stumbled upon by the mob. The attack on Palacerigg seems to me in a way comparable; perhaps this too was a case of mistaken identity (by over-zealous reformers). And though no humans were killed, "two sheep and a fox were killed by a wolf released by the raiders", ironically in that the group claiming responsibility called itself the "Animal Liberation Army" (27). I think reformers need to be as aware of the dangers of excessive, improper domination, and even cruelty, as, for their part, must those who keep animals. The reformers need to realise that they are not oracles of all wisdom, and that it is only too easy to sweep away what is good along with what is bad (28).

NOTES TO CHAPTER 6

1. V. McKenna, "The Concrete Jungles", She, Oct 1984, p 76.
2. M. Midgley, letter to The Independent, 26 Aug 1987. See also Jamieson, "Against Zoos", p 117; North, p 102; Thomas, p 277.
3. "The Torturer's Century", leading article in The Times, 15 Sept 1987.
4. See several examples in B.W.P. Wells, Body and Personality (London: Longman, 1983).
The horrors of mere flogging in the American navy last century are described by Herman Melville in White Jacket (first published 1850).
5. J. Vyvyan, In Pity and in Anger (London: Joseph, 1969), pp 27-49, "The School of Paris";

Ryder, op. cit. (chapter 1), e.g. pp 40–41 (the notorious LD50 test); pp 82–84 (examples of direct pain-causing by researchers);
Patrick Moore (ed), Against Hunting (London: Gollancz, 1965).

6. Batten, op. cit. (chapter 1); Jordan and Ormrod, op. cit. (chapter 1), e.g. pp 160–161 (on badgers) and 176–177 (on bears).

7. Victor Sylvester, posthumous letter, The Guardian, 1980.

8. S. Milgram, Obedience to Authority: An Experimental View (Harper and Row, 1974).

9. M. Midgley, Beast and Man (Hassocks: Harvester, 1978), p 40 ff; K. Lorenz, On Aggression (London: Methuen, 1967), p 207 ff.
If it did not give us pleasure just to receive an acknowledgement from another human, or displeasure to receive a grimace, then, I suggest, it would be pointless even for car drivers to make a gesture of thanks (and sometimes the opposite) to another driver.

10. I am taking, roughly, unjustified violence as the most obvious example of cruelty, though of course some cruelty is not violent.

11. This was clearly true of Magendie, and perhaps of Bernard.
Often there may be a sexual element in the enjoyment. See Wells, B.W.P., Body and Personality (London: Longman, 1983), p 75 ff for the connection of repressed sexuality and the cruelties of the Inquisition; see M. Duffy, op. cit. (chapter 4, note 51), p 102 ff for the sexual element in hunting.

12. Vyvyan, op. cit., pp 85, 86.

13. Watkins, J.F., "The strident scalpel", Times Literary Supplement, 29 May 1981, p 592: "A man who does not, in his depths, enjoy cutting flesh could never endure the physical and mental strain of being a surgeon." In an interview Professor Hugh Dudley, a surgeon, replied to a question that he did not know if there was any element of sadism in the work of a surgeon; he hoped not ("In the Psychiatrist's Chair", Radio 4, 28 August 1982).

14. See, for example, L. Pascal, "Judgement Day" in P. Singer (ee), Applied Ethics (Oxford: OUP, 1986), pp 105–123.

15. See G. Steiner, The Language of Silence (London: Faber and Faber, 1985), p 81; L. Woolf, An Autobiography, Vol 2 (Oxford: OUP, 1980), espec. p 387.

16. Hence the outrageousness of the Massacre of Glencoe, when British troops were ordered to attack those whose hospitality they had been accepting, as well recounted in Mollie Hunter, The Ghosts of Glencoe (London: Pan, 1979); e.g. also the treatment of the grandfather by his family in C. Turnbull, The Mountain People (London: Triad/Paladin, 1984), p 170–172.

17. C. Roots, Exotic birds for Cage and Aviary (London: Cassell, 1971), p 3.

18. V. McKenna, "Past, Present - Future indicative" in V. McKenna et al, Beyond the Bars (Wellingborough: Thorsons, 1987), p 39; see Cherfas, op. cit. (chapter 1), p 226.

19. Not that dogs are always dominated by their humans. They can exert considerable power over them (see R.A. Mugford, "The social skills of dogs as an indicator of animal awareness" in D.G.M. Wood-Gush et al, Self-awareness in Domesticated Animals (Potters Bar, Herts: UFAW, 1981), pp 40-44).

20. See J. Laver, British Military Uniforms (Harmondsworth: Penguin, 1948), pp 23-26, for reference to hierarchical principle in dress.

21. Arthur Koestler, Darkness at Noon (Harmondsworth: Penguin, 1964), e.g. p 131: "Yes, we liquidated the parasitic part of the peasantry and let it die of starvation. It was a surgical operation which had to be done once and for all..."

22. But see T. Nagel, Mortal Questions (Cambridge: CUP, 1979), pp 75-90, "Ruthlessness in Public Life".

23. W.H. Lewis (ed), Letters of C.S. Lewis (London: Bles, 1966).

24. "I'm as competitive when I'm showing my birds as when I'm putting the shot", Interview by A. Wilkes, The Sunday Times, 11 Nov 1984.

25. Mugford, op. cit.

26. Clutton-Brock, op. cit. (chapter 1), p 55: it is a "capacity for active submissive behaviour that enables personal relationships to develop between animal and man".

27. The Glasgow Herald, 17 Nov 1984.

28. One example, no doubt from many, would be the famous attack on the Bastille, when through error innocent guards keen only to assist the Parisian people and avoid bloodshed were killed. See G. Pernoud and S. Flaissier, The French Revolution (New York: Capricorn, 1970), p 33.

Chapter 7

THE WILD VERSUS CAPTIVITY

I want now to attempt the assessment of the advantages and drawbacks of living in the wild that I spoke of in 5.2.4 (p 118). I will be mainly considering conditions of life in the wild though I will also, especially in 7.2 (Health), say a good deal about captive conditions in comparison with those of the wild. I shall have in mind certain claims often made in defence of zoos, and at least one particular claim made against them. The claims defending zoos are that animals in reputable zoos (at least) are better off than in the wild for such reasons as the following:

(i) They often live far longer.

This claim I shall examine in 7.1, where I shall consider too the matter of violent death in the wild.

(ii) They are healthier, not least because of veterinary care (1).

This claim I shall consider in 7.2, where I shall perhaps seem to be weighting the case unduly against zoos. In fact I naturally regard the provision of veterinary care and indeed protection from the pressures of the wild as clear advantages of good captivity, but at the same time I think it is over-simplified to express this as a clear statement

that captive animals are healthier than wild ones; and I try to make clear some of the complexities of the situation.

(iii) They do not go short of food; indeed they are saved the trouble of seeking it.

(iv) They are not exposed to predators or the elements, or other pressures of a natural life such as being bullied by conspecifics (2).

Claim (iii), and in some degree claim (iv), I shall look at in 7.3, where I will try to expound what I think is the clearest advantage of the wild, the fact that life there is likely to be purposeful and meaningful; this fact I think poses a considerable challenge to zoos to find ways of compensating for the absence of an important aspect of wild living.

A claim sometimes made against zoos is that wild animals are so closely adapted to life in the wild that their captivity can not be morally justified and is also pointless because keeping them captive effectively alters them so much that they even cease to be "representative of their species" (3).

This last claim I shall examine in 7.4.

7.1 LENGTH OF LIFE AND VIOLENT DEATH

So far as poor captivity, e.g. a bird's in a cramped cage, is concerned, Chaucer's statement of the bird's likely preferences (see p 6) could hardly be bettered. But there is at least one important aspect of life in the wild

which Chaucer omitted, unlike Wyatt in these lines, rather more than a hundred years later:

> Like as the bird in the cage enclosed,
> The door unsparred and the hawk without,
> 'Twixt death and prison piteously oppressed,
> Whether for to choose standeth in doubt... (4)

Hawks are just one example of the dangers that face, for example, robins, who normally live in the wild a mere tenth of their potential life span and have, any year, only a 50% chance of surviving to the next (5). Thus it is indeed only too true that captive animals often live longer than wild ones; for many animals it must be true that only with man's protection have they any chance of dying of (as we say) old age. Suppose we consider, instead of Chaucer's no doubt miserably confined bird, a budgerigar who is allowed out frequently to fly about the house and who enjoys a good relationship with his owner (or one in a roomy aviary at a zoo). If the actuary's tables for wild-living budgerigars are anything like those for robins, then such a well cared for budgerigar seems to have a good bargain in terms of total pleasure or satisfaction from living. I doubt in fact if the risks throughout life for large mammals like lions or chimpanzees are anything like as high as for small birds or small mammals such as rodents, but there will still be for lions and chimpanzees, I think, a very high death rate in early years (as there was, of course, with humans until the protection offered by modern medicine). About 20% of lion cubs survive in the wild, I recall, to maturity, most

cubs dying of starvation. Once past the vulnerable age a lion's or chimpanzee's survival chances presumably greatly increase, and this is what one would expect from the mere fact that it is worthwhile carrying out on such animals field studies which involve identifying and observing individuals: this would hardly be worth doing were such individuals continually dying off. Clearly too the chimpanzee Flo (whom I mentioned in 4.3) died of old age (6).

It must still be true, however, in view of the high early loss even of animals which are fairly safe once they are mature, that a great many animals in zoos would, if they had lived in the wild instead, have died young. I have yet to discuss the extent to which life in captivity can be a satisfactory one for the animal concerned, but if, at this stage, I simply assume that in some cases it is, it seems to me that, in such cases, the comment on their captivity "It seems sad" (12b in my list of objections to zoos in 1.2, page 12) is inappropriate. For if the animal is living a reasonably enjoyable life (which I am assuming it is), and if it would have been living no life at all were it not in capivity (which is often the case), there seems nothing to be sad about.

David Jones has recently provided a vivid and almost awesome account of the dangers both natural and manmade faced by wild-living animals (7). Correctly, I think, he stresses how natural events - "predation, disease, injuries, starvation" - are "all part of a natural drama",

but none the less threatening to the individual for all that. We know, from the mere fact (an aspect of natural selection) that all animals (like other organisms) have a much higher rate of increase than is necessary merely to replenish their numbers, that most of those born must be dying early from some cause, else population levels would not be remaining as constant as, except for humans and rodents, they normally do (8). This point I will return to in 7.4, but I mention it here to stress how we still, whenever we come across an actual injured wild animal, or a dead one, tend to feel sympathy and regret, even if we comment to ourselves that there is really no point in regret because such injuries and deaths are natural and essential. We are recognising that injury and death, however necessary, indeed essential, biologically, are still misfortunes and often causes of suffering to the animals concerned.

Perhaps many animals can suffer mentally from the deaths of their fellows more than we realise. I commented in 4.3 on how a dog can obviously feel the loss of a human, so is he not likely to be able to feel similarly sometimes the loss of another dog? It seems to me that our own sense of loss at the death of an animal we know well, such as a dog, is partly an experience an animal could easily feel. For what we probably miss is the presence of a familiar creature that greets us on our return, makes various familiar sounds, and so on. An animal could surely perfectly well miss another animal in this way: could

simply be aware, as it were, of the absence of a comforting "presence" that had been there previously. Behaviour is sometimes observed in birds that looks like an expression of mourning; as we know that swallow mates, for example, choose each other, and thus obviously know each other as individuals, it seems likely, rather than the opposite, that they will experience some sense of loss on each other's death (9). If so, then life in the wild is likely to include a good deal of suffering, even if very short-lived compared to its occurrence in humans, at the loss of mates or other familiar conspecifics. I see no reason for assuming that this could only occur with such animals as elephants or gorillas.

Of course it is not the case that all animals in zoos live to old age or even, sadly, that they can all be allowed to. As the breeding of captive animals improves and approaches the rate of increase in the wild, it is clear that either birth control or the killing of surplus animals is likely to be necessary (10). In as much as I am right to suppose a likelihood that animals' suffering from the loss of (for example) partners is widespread, this is an additional reason for avoiding killing captive animals as far as possible. But at least if any animal has to be killed in a zoo it will be a humane death. For death in the wild can be a source of suffering, and more certainly so, in other ways (for I accept that I am speculating a good deal in the previous paragraph). Death can be itself violent, or it can be a slow death, as from injury or

disease. The latter I will leave until 7.2, but I will consider violent death briefly now - the "hawk without", in Wyatt's words.

For me, knowledge of the operation of natural selection, and indeed simply of predators' need for food, makes me no less shocked by the reality, when I occasionally meet it, of nature red in tooth and claw. A mouse caught, still less played with, by a cat is not a pleasant sight, and a wild cheetah (for example) will provide her cubs with a living, injured young gazelle to practise hunting on (11). The sight of a frog struggling in the beak of a hen (I still remember vividly seeing this 25 years ago) shocks me. I understand how a thought of newly hatched turtles devoured by seabirds before they even reach the sea could seem (as in Tennessee Williams' play Suddenly Last Summer, I recall) a vision of a cruel God. The horror of violent death is caught by Stubbs' painting of a horse in the moment of attack by a lion, its head turned with a look of absolute terror (12). Now, it may be that this is to get things out of proportion, to allow certain violent incidents to occupy the whole of our field of vision so that we think they make up the major part of reality, of what happens in animals' daily lives, when in fact this can not be the case. The terrified horse would only be in this state a minute or two. It might have had frightening near-escapes before, but could not have been caught in the way it had this time else it would not have lived to be caught again. Most of its life is likely

to have had an even tenor (13). The violent contrast between the horror and the usual quality of its life may be what upsets us so much. The newly hatched turtles that are caught must suffer very briefly and presumably know little of it. Perhaps any sadness we feel should be more because they are so many lost potential lives than because of the suffering involved in their deaths, and doubtless our feeling should in any case be tempered by recognition of the virtual biological impossibility of their all surviving. It is also likely that in many cases of violent death, such as a wildebeeste eaten alive by hyaenas, the victim may feel no pain because of the action of endorphins or some similar mechanism. This accords with much human experience of serious injury in the heat of battle or the like causing no pain till later (14). But on the other hand there is no reason to doubt the occurrence of extreme stress in, for example, the catching of a mouse by a cat, or, still more, in its being played with by the cat, or in many incidents when animals are clearly struggling desperately to escape from predators.

So I think that the fact an animal in a zoo is protected from the violence and other dangers of natural life is not an aspect of captivity to be scorned. Jones correctly emphasises how many of the "challenges" of the wild "would not usually be tolerated in a captive situation" (15). We are in some degree conferring on our captive animals the protection from violent death and from disease which civilisation has (to some extent) conferred

on ourselves. On the other hand, captive animals have not (usually) "asked" to be rescued and the protection we offer can not compensate for a life of dullness and boredom. The "purposefulness" of life in the wild I shall look at in 7.3, but I will say now that if we can successfully compensate for the loss of this aspect of wild living (and it is mainly, perhaps, a problem with the more exploratory, opportunist animals, as we will see in chapters 9 and 10), then the captive animal has by no means a bad bargain.

7.2 A COMPARISON OF HEALTH IN THE WILD AND IN CAPTIVITY

7.2.1 Wild animals develop all kinds of infections. They can be parasitised, can become injured, or can be attacked by marauding insects. They can look very much worse for wear compared to their protected, medically attended cousins in captivity. Smith remarks that an apparently typical wild lion with its "fur in a mess", and with wounds and problems with flies, looked so much worse than a safari park one that it would, in captivity, have been disposed of as an embarrassment (16).

However, while wild animals can have considerable health problems, they can perfectly well cope with many of their infections (17). And serious ill-health is normally not found among wild animals because a seriously unhealthy animal is soon a dead one. Animals either manage to cope with, say, parasites or they fail utterly - i.e. die. The middle course open to humans and well cared for captive

animals is not open to them.

Still, mild states of ill-health can cause discomfort without causing death. A successful parasite in biological terms is one that does not kill its host - but it may cause discomfort. Here the captive animal is clearly better off in that medical aid easing minor suffering should be available.

7.2.2 On the other hand, captive animals, healthwise, are not wholly gainers by their captivity. The captive state can protect them medically, but it can also expose them to infections they would have escaped in the wild. First, the process of capture and transport is likely to be stressful to a degree which makes the animal concerned more liable to serious parasitic infection (18). When Hindle remarks that "A large proportion of all newly arrived animals at the London Zoo are infected with various parasites which are gradually eliminated as a result of treatment and absence of re-infection" (19), what he is saying is no doubt wholly true. But it could easily be the case (and these words were written over thirty years ago) that many of the infections, or their intensity, are partly or wholly due to the stress of capture and transport, so that the human care very creditably given to curing them is partly necessary merely to put right the damage caused by man.

Secondly, conditions in zoos can greatly aid the spread of parasites, or else necessitate the provision of a dull, sterile environment in order to restrict their

spread. Ungulates kept in small paddocks are very prone to this; so are cats kept in other than very large enclosures. Sadly, they may therefore require concrete or tiles, which are easily washed and sterilized, but with (when so washed) the loss of familiar and perhaps carefully deposited smells. It is important to note that, whether or not it is necessary in particular captive conditions, a lower than natural level of internal parasites such as nematodes is not a kind of super-health, i.e. is itself no advantage (20). Primates, because of their nomadic habits in the wild, lack the tidy, sanitary tendency of, for example, many carnivores, which deposit their droppings in regular spots away from their "living area". So in captivity it is often considered advisable to provide primates with regrettably hygienic conditions. (Medieval kings, true primates, needed their numerous palaces because of the deficiency of the sanitary arrangements (21).)

Thirdly, an animal can be exposed in a zoo to infection it would not face in the wild (22). The antarctic-living species of penguin live naturally in a highly aseptic climate. In zoos they are susceptible to the fungus-caused aspergillosis, and often die. Primates, especially apes, are liable to be infected by humans with diseases which may or may not be natural to them in the wild: tuberculosis, measles, respiratory diseases in general. Usually the danger is greatest just after importation, presumably in most cases after capture in the

wild (23).

Fourthly, disease or injury can arise from zoo conditions, like teeth being broken and caries developing from the biting of bars. Rhinoceroses can rub their horns against unsuitable objects. Caries can also develop from the eating of the wrong food, as was common in the past when public feeding was allowed, with bears and elephants as well as primates, and even rhinoceroses (24).

Probably too (it has been suggested to me), zoo medicine is still somewhat haphazard, because there is no great economic pressure to develop, say, specific pharmaceutical preparations, and because indeed of the wide range of species. So treatments are likely sometimes to be somewhat experimental, though zoo animals can no doubt also benefit from the special attention they receive thanks to the academic interest of the problems they pose (25).

7.2.3 We tend, I think, to use the term "health" in two different though related senses. There is what we may call health1, which is the opposite of being ill (as in the prayer book phrase "in sickness and in health"). And there is health2, to possess which is to have the ability to cope with infection, the ability to remain in or keep returning to a state of health1 whatever infections etc occur. Probably we would use the adjective "healthy" more in the second sense: we would not say "Are you still ill or are you now healthy?" We recognise that you do not necessarily cease to be healthy by being ill, provided

that the latter is a temporary thing, something you are demonstrating your ability to cope with. President Reagan, in hospital after the attempt on his life, was no longer in a state of health1 - he was seriously injured - but by the way he was coping with his injury was demonstrating he possessed health2 (26).

Now if we are thinking of health1, and especially if we are thinking of the relatively minor disturbances which can remove it, then well cared for zoo animals may indeed be healthier: they have veterinary care to restore them quickly to a state of health, and in any case they are protected to a great extent from the situations which are going to cause injuries. But it is only health1 here which we can be sure they possess - most of the time. They may possess health2 but their artificially protected situation prevents our judging this. We would, I think, regard the man who remains well without aid from his doctor as healthier than the man who remains well but only through frequent medical dosing. A set of teeth with no fillings and not requiring any would rate as a healthier set than those of a man with many fillings, even though the latter set, cared for efficiently by the dentist, is healthier than the set requiring fillings but not receiving the appropriate treatment. The man who remains well not only without medical aid but through difficult physical situations - physically or mentally demanding - would be rated healthier again. And indeed he does not need to remain "in perfect health" to be judged, as we might say,

basically healthy, healthy in the important sense much more than the man who suffers not a scratch but only because he never faces the situations the other man can cope with. Now the wild lion as described by Smith with its "fur in a mess", etc is in the situation of the man who faces demanding situations, the arctic explorer perhaps, or the active sportsman. If we rule these last to be unhealthy because of their "scratches", or even more serious injuries, then we are judging by externals, by trivialities even. Similarly if we rule the wild lion to be unhealthy compared to the artificially protected safari park lion.

Qualifications are needed. One is that few if any situations are wholly safe or protected. Animals die prematurely in captivity: we saw above certain special threats facing them which would not do so in the wild. Veterinary care cannot guarantee a captive animal's survival, much less its remaining in "A1 condition". A captive animal remaining in good health (i.e. health1) most of the time is demonstrating some degree of health2, no doubt. But it is demonstrating nothing like the degree of health2 that it would be in the wild. (This is assuming good captivity. The opposite would be true in bad captive conditions or in bad conditions of transport.)

Health2 is fairly close perhaps to "fitness" as we would ordinarily use the word. The captive lion may be healthy; it is obviously not as fit as a wild lion. The captive animal must almost certainly be obtaining less

exercise than its wild conspecific; it must be less "in training". We can speak of an animal being fitted to a particular environment in a sense which has nothing to do with exercise, but at the same time it happens to be the case that the fitness of a great many animals - certainly most of the mammals traditionally kept in zoos - includes "fitness" in the health or athletic sense. It seems unconvincing to argue that a captive gazelle or lion lacking surely undoubtedly the fitness in this sense of its wild conspecific could be said to be healthier (27). It could be happier; it could be relatively very healthy. But healthier, surely not.

7.2.4 One way in which the captive antelope if not the lion could well be happier is in its freedom from stressful situations. But this again surely does not make the captive animal healthier than the wild one, in that a mild degree of "physiological stress" is a set of physiological events in the animal which enable it to cope with the difficult situations which occur in its natural life. The animal demonstrates, by such physiological changes as the release of ACTH and the consequent increased output of hydrocortisone etc, and the other events which (with great variations in different animals) make up the second stage of Selye's General Adaptation Syndrome, that its health is good (28). On the other hand, the events of the third stage do seem to be mainly detrimental: a well looked after captive animal is no doubt healthier as well as luckier in as much as it

escapes this condition of extreme stress which will occur sometimes in the wild. (It can also occur in captivity (29).) Extreme stress in fact involves a general breakdown of health. But the fact remains that having no cause to show the milder earlier reactions of "physiological stress" hardly qualifies the captive animal to be regarded as healthier than its wild counterpart, though it is arguable that it may be happier without this milder stress too. Dawkins makes the point that "some lesser stress symptoms ... may be an indication of well-being", and mentions some evidence that "the physical health of animals which show some signs of the GAS can, in some cases, be shown to be better than that of animals which show no sign of it" (30). This is perhaps only to be expected with animals, being the case with ourselves: human "fitness" in the normal "health" sense includes the ability to respond to at least mildly stressful situations - such as occur of course in sport - and such responding involves the hormone releases etc of physiological stress as much as it involves, say, actual muscular contractions.

7.2.5 We might define health in the way the World Health Organisation did in its constitution: "...health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (31). We might well feel, with humans, that a full definition of good health includes "leading a full life" or "leading a normal life". If we would, then a similar definition should be appropriate for any

particular kind of animal, in which case the captive animal, obviously necessarily not leading a normal, i.e. natural, life, would be by definition less than healthy in the fullest sense. This I would see as a challenge to us to provide the animal with a kind of captivity which approaches or substitutes for its natural life to the greatest degree we can manage. I do not think this by any means a hopeless proposition, as we will see in chapters 9 and 10.

7.2.6 Sometimes we apply the term "healthy" not to an individual organism but to its environment. Sometimes too we speak of the health of a community rather than of an individual (and of course there is community medicine and social medicine) (32). The health of the community could reasonably be seen as the sum of the respective healths of the community's constituent individuals. However it seems clear, aware as we are today of the problems of over-population, that the health of the human population viewed as a whole is far from being the same thing as the health of all the world's individual humans. For the death early in life, as a result it could be said of ill-health, of large numbers of humans is a factor which has helped to keep many primitive human communities at a fairly steady population level. Now, of course, the population of certain "third world" countries, for example several African states, is increasing partly because of the much higher rate of survival - the greater health, in fact - of babies and young children thanks to improved

medicine. Fiennes speaks of the "ancient evolutionary significance" of disease, its "value in controlling population numbers and in maintaining the stamina of the species" (33). We can perhaps say that the health of a community, or its general well-being, depends on its numbers not increasing to "an extent where food supplies become inadequate, where there is insufficient cover for concealment and protection, or there are not enough places in which to produce and rear the young" (34). Disease is at least one factor which helps to prevent such happening: unhealthy individuals do not survive. In captivity on the other hand veterinary care in particular can to some extent ensure the survival of relatively unhealthy individuals, so that the general health of the population deteriorates (35). Thus if, as we legitimately can, we choose to consider the health of the species as contrasted with the health of its individuals, then it is even less likely than when we are speaking of the health of individuals as such that we can make a justifiable "blanket" judgement that the health of animals in zoos is better than that of their wild fellows. Still, when we say this, we are also emphasising the extent to which captive animals are free from the pressures, including a high chance of being struck by fatal disease, which they would be subject to in the wild.

7.3 FOOD, PLEASURE AND PURPOSE

To be provided with food, even the best food, is a mixed blessing (36). It is a gain not to go short or starve, as many animals in the wild do (37). But as food seeking undeniably makes up much of an animal's life - and to a great extent its very method of obtaining food will have "formed" it anatomically, physiologically, and behaviourally - to have food provided may mean being left with little occupation or motivation. The animal may thus be deprived of a main purpose in existence or rather, perhaps, of likely opportunities to engage in activities whose performance would in the wild produce or be accompanied by, psychologically, a sense of purposefulness. This is probably not much of a problem for herbivores such as ungulates, who would spend much time in the wild merely eating, and can continue to do so in captivity, and, in addition, being in most cases highly social animals will be occupied by their social relations as in the wild. Such obvious opportunists as bears and dogs are likely to come off worst (38).

With predators in captivity, we must surely to some extent be depriving them of a source of pleasure or satisfaction, despite what seems to be often a reluctance to grant this. This is not to say that they necessarily "experience" any "deprivation"; I am only claiming that they are failing to have an experience which, if they did, would give them satisfaction (39). Is not the extent to which humans who go hunting enjoy it at least prima facie

evidence for nonhuman predators' enjoying hunting too? Perhaps hunting for survival rather than sport is less enjoyable, being serious. But recreational hunting such as fox hunting is taken very seriously, voluntarily, presumably with increase of or at least no diminution to the pleasure, which rather suggests that hunting genuinely in earnest will similarly be pleasurable (40). It hardly needs arguing that cats enjoy hunting and catching mice. Apart from domestic cats' notorious taste for playing with their victims, the fact that cats, especially kittens and cubs, play at hunting – e.g. leaping on each other rather as a cat pounces on prey – suggests this. It is likely that a cat enjoys actual hunting as much as, perhaps more than, play hunting.

However, apart from the pleasure or satisfaction a predator gets from the actual killing and its immediate preliminaries, I suggest that, as with a human hunt, the whole operation of seeking food, the animal's appetitive behaviour, as we call it, is likely to be pleasurable or satisfying through producing the sense of purposefulness I mentioned above. And quite apart from predators in particular, any animal, in as much as it engages in any of the "important business of life" – e.g. hunting, feeding, nest building, mating and reproductive behaviour, the establishing and maintaining of social relations – is probably experiencing a sense of purpose, and is likely to be reasonably well off. I am concerned here with its subjective state, and I think this having a

sense of purpose is probably the most important "feeling" to have. It seems, in short, more than likely that wild animals get satisfaction from many of the things they have to do in the course of living.

I do not think the term "sense of purpose" is anthropomorphic. It is, for example, upsetting to a dog if you tell him he is coming for a walk, then stop after two paces and tell him he is not. This is worse than not suggesting a walk in the first place. If you went on doing this, chopping and changing, you would probably upset him considerably. This suggests roughly what I mean by saying an animal needs a sense of purpose. It is almost a logical necessity of being an animal at all that certain tasks are incompatible: so something goes wrong if you try and do two at once, or can not make up your mind which to do. The fact that, if you are going to do something (and animals have to to do things to survive, to be animals at all), it is necessary to start it and go on with it, and not keep switching to different things, is not a necessary requirement for people as such, but for animals. The feeling of frustration that we get if we fail to complete some task we have started can be (like pain, pleasure and boredom) biologically useful: it helps to dissuade us from constantly starting and stopping. Surely there are grounds here for thinking it likely that animals are going to feel the same kinds of frustration as we do - e.g. if a lion has got a meal to eat, but keeps being disturbed by hyaenas. The possibility of this sort of problem seems to

me a basic necessity of being an animal. And to have everything going well, or reasonably well, seems likely to be a source of satisfaction to other animals as much as to us.

Something else which seems likely to be very important to an animal is a sense of security, a sense of belonging, which could perhaps go with a sense of purpose. There are various indications that some animals do need this: the Harlows' (very inhumane) experiments showing how infant monkeys need a source of security, a source of confidence (41). Dogs can show their general sense of unease, of not being relaxed, by their failure to groom themselves. Of course this sense of security, and indeed many of the other pleasures that I listed in 4.2.2 (p 76 ff), an animal should be able to enjoy in good captivity.

Now obviously in the wild there are all sorts of discomforts, problems and very real dangers. I have referred to several already: parasites, bites from horse flies, problems of finding food, the unpleasantness of sometimes going without or actually starving, the strain of only just escaping sometimes from a predator, the likely sense of loss (I have suggested in 7.1) from the deaths of familiar conspecifics. But we have our problems too and for most of us, most of the time, they are not overwhelming. What often prevents nervous breakdown is a sense of purpose and a sense of security. Given these, we can often cope with many problems including hard work. Of course it makes a difference what human society we are

speaking of. At the end of 7.1 I noted how civilisation protects us from many dangers, but there are glaring exceptions such as war. Yet although war is a cause of appalling suffering, it seems that the suicide rate tends to go down in wartime, presumably because people tend to have more of a sense of purpose, and perhaps of comradeship and of belonging, and these more than compensate for the presence of extra hardships in preventing extreme depression. Someone might retort that people are no happier in a war; they are merely too busy to worry about not being happy. Pehaps this is so, but whether or not we would count it as happiness, at least it is true that a state of non-depression, a state far from that extreme depression which could lead to suicide, is likely to accompany the state of being very busy: having things to get on with.

The discomforts and still more the dangers of the wild are very real, and many animals succumb to those dangers very early in their lives, as we have seen. But in as much as any individual survives at all, what is important to it, I suggest, is to have plenty to get on with, which I think wild animals obviously normally do, and this is much of what I mean by "having a sense of purpose", and to have a sense of security and where appropriate companionship - to have a home base and proper relations with one's nearby conspecifics in the case of a social animal. Dawkins mentions experimental findings that sheep are stressed by situations such as being put in a

truck or chased by a dog but nothing like as much as they are stressed by simply being separated from the rest of the flock (42). This seems to bear out what I am suggesting.

And as I emphasised in 4.2, life in the wild is often not all "business", essential activities for survival, compensated for only by a sense of purpose such as I have been proposing. There are also plenty of reports of animals enjoying themselves in a "direct way".

So in brief, I suggest that to give the provision of regular food and safety from predators and other dangers, not to mention discomforts, as advantages, pure and simple, of captivity over against life in the wild is to leave out certain related disadvantages which go hand in hand with such advantages: the loss, in particular, of purposeful living.

It is perhaps a tacit admission that wild life must be reasonably pleasant that no-one (not even those who feel they have a right to capture any animals they wish to, or need to) would suggest it was cruel or unkind not to capture any animal, to leave it in the wild (except in cases of certain injured or abandoned individuals). It seems to be agreed that we are not injuring animals by merely leaving them alone (43). But then again, it is perhaps more a matter of recognising that at least normal natural pressures on wild animals are not our responsibility, that we indeed have a responsibility to avoid interfering if possible with natural ecosystems, and

also that we are distanced anyway by necessity from most wild animals - we do not know them as individuals, and are therefore just not going to be, in the scheme of things, very concerned about them (44).

However, although I think that it will not do, in view of these various considerations, to regard captivity as acceptable simply because it is likely to be pleasanter than the wild (45), I also think, as I shall try to show in the next section and the three following chapters, that we have many indications that some animals can be in a state of wellbeing in captivity. I think that in many cases it is possible to provide conditions of captivity which to a great extent compensate for the loss of the positive side of wild existence. But we need to recognise that positive side to realise our responsibility to provide suitably enriched captive conditions.

7.4 EVOLUTION AND ADAPTATION

Presumably all animals are adapted to life in their natural habitats (the "wild"). From this we might presume:

a) that they are well off there;

b) that they are not likely to be well off in captivity;

or even c) that it is virtually impossible for them to be well off in captivity.

Point c) is frequently claimed (46), but I think with regard to many animals it is, for biological reasons,

mistaken, which I will now try to show. To do this, I want to look more closely at the indeed indisputable fact, that wild animals are adapted to their environment, and consider whether a) and b) or c) do in fact follow from it.

Animals' adaptations are indeed most striking, and are the product, at least in some cases, of millions of years of natural selection. However, the characteristics of animals - their sense organs, body coverings, communication systems, etc - are by no means entirely the product of the habitat or the environment (47). Animals' characteristics all have their present form as a result of alterations made to appropriate features of the animals' ancestors, alterations which, as a result of natural selection, have occurred so as to make those features fit the environment, or fit a changed environment, more closely. The alterations which have produced the present adaptations could only be made (by natural selection) on the features which happened to be available. Thus in a way, all the various adaptations of animals - anatomical, physiological, even behavioural - are makeshift arrangements, though often "inspired" makeshift showing, as it were, the utmost "ingenuity". A few "large-scale" vertebrate examples which come to mind are gill arches converted to jaw bones, jaw-supporting bones converted to ear ossicles, fins converted to legs, inner ears developed probably from something like a lateral line system, and so on. Animals are not perfectly adapted; they are, so to

speak, never designed from first principles, but rather themselves "adaptations", in the sense of "adaptive alterations", of what went before (48), an aspect of the extent to which "nature [is] prodigal in variation, but niggardly in innovation" (49). One human example of imperfect adaptation is the tendency to suffer arthritis around the area of the hip bones, probably partly a result of a four-legged "horizontal" animal's having been converted into a "vertical" two-legged one. Again, it is not a perfect arrangement to have the respiratory pathway to the lungs overlapping with the food pathway; but this is because we are a gill-breathing animal converted to a lung breathing one, the lungs starting as extensions of the food pathway. De Beer gives an example of a way in which "physiological adaptation to viviparity... [has] not become co-adapted to the immunological mechanism", hence the risk of haemolytic disease in the offspring of a Rhesus-positive father and a Rhesus-negative mother. Examples could be almost literally endless. As de Beer emphasises, animals can not be perfectly adapted, for if they were, evolution, which is essentially the improvement of adaptations, could not occur (50). In some cases certain species, as a result of environmental changes they fail to adjust to, are in varying degrees ill-adapted (51).

Furthermore, all individuals of any particular species differ slightly, having slightly different sets of genes, so that they are not equally adapted, even though

to a great extent they are all inheritors of millions of years of natural selection. Even if one could identify a pair of animals almost perfectly adapted to their environment, their young would not be to the same extent, or to the same extent as each other, for all get dealt a slightly different genetic "hand".

As evolution is a matter of the differential passing on of genes, so that different genes gradually become more widespread through the gene pool of any particular species, as a result of the individuals carrying them being slightly more successful in reproducing, the welfare of individual animals is hardly going to be benefited by evolution except in as much as genes aiding welfare also enable the animals carrying them to reproduce successfully, which also includes surviving long enough to reproduce. There seems no way in which the welfare of animals past breeding age can be selected for, except where their welfare assists younger relatives of theirs to reproduce. However, as animals cannot live efficiently, presumably, and cannot reproduce efficiently if they find life too difficult - if they get too disturbed, or too miserable, or are hurt too much - there will be selection of characteristics producing some degree of wellbeing, perhaps some degree of happiness (52). (See my discussion of pleasure in chapter 4 and in previous section of this chapter.)

There must be some "survival of the fittest". Although even a small reproductive advantage conferred by

a gene is enough to ensure its selection - i.e. its gradual spread through the gene pool - it seems likely that many individuals of any species die young, in some cases this being part of natural selection (i.e. where the death is due to some genetically inherited disadvantageous feature in an animal compared to its conspecifics). So while the so-called struggle for survival is in many ways a peaceful struggle (53), hardly suggesting nature red in tooth and claw, it still does involve a great many animals dying long before their potential life span, and by no means entirely without suffering (as we saw in 7.1 and 7.2).

Animals (perhaps certain more adventurous or exploratory individuals of a species) will sometimes move into new habitats, or may adopt some new behaviour. This may be a substantial factor in evolution (54). In the new habitat or the new niche, selection will operate to improve adaptation to it, but this will be a slow process, and the development will be occurring in a population, not in any single individuals. Some or all individuals may well be rather ill-adapted in the early stages of moving into a new habitat or a new niche, as in the situation of an environmental change which forces upon a population a need to adapt, if it has enough genetic adaptability; failure to adapt in such circumstances is likely of course to result in extinction (55). A possible human example of failure fully to adapt following a move into a new kind of habitat could be the condition in eskimos known as "frozen

lung". That is, although eskimos are adapted to their difficult environment in various anatomical and other respects (for example their short, squat body shape, with a relatively small surface area for heat loss), they are far from perfectly adapted to the intense cold, and can suffer as a result. Tigers may have moved fairly recently into tropical regions, and be as yet inadequately enough adapted to them to suffer discomfort from the heat.

Animals, perhaps partly because they are all (including humans) "previous models" "updated" with numerous adaptations, have varying degrees of adaptability. Some move readily into new environments created by man (like cities); others can not adapt so easily. Here I am thinking mainly not of genetic adaptability, but of cultural or behavioural (or physiological) adaptability, an animal's ability to adjust to changed circumstances within its own lifetime. Some become tame easily, some can be trained easily, others not. Some can change their habits easily, e.g. switch to different kinds of food (of course, within limits); some (like koalas) cannot.

Sometimes an animal which moves into association with man is moving into a new niche evolutionarily, as with sheep and dogs. True, our domesticated sheep and dogs are to a great extent the products of artificial selection. But in another sense this is a natural process, in that man himself is a part of nature, and that what he does in selecting certain characters and as a result increasing

greatly the numbers of certain genes can be seen as a way in which those genes are manipulating him (not of course in any sense consciously or voluntarily). If we measure evolutionary success in terms of numbers of individuals of a particular species, as we well may, then we can see dogs as enormously successful where their wild conspecifics are failing (56). This does not mean that domestication is necessarily morally right; we might well object to certain examples of it (57), and some may object to it all on moral grounds (58). But it cannot, I think, be regarded sensibly as "biologically" wrong, and we might regard it as biologically very successful, of course depending on how we decide to measure biological success.

Therefore, although it is true that animals are adapted to their natural habitats, and to their ways of life therein, and although it is likely that if we take them out of their natural habitats and keep them in captivity they are likely to have much less of what they need for wellbeing, this is far from being an absolute rule. It is unlikely that any animals require all the features of their habitats. Some may be vital; all hardly can be, if only because all animals are likely to be somewhat adaptable. (Otherwise they are extremely dependent on an unchanging environment. This probably does apply to some animals in the sea, which is very unchanging.) Consider, for example, the Woolly Monkey Sanctuary (see chapter 2, p 39). In some ways it provides natural conditions, in that there are facilities for the

forming of proper social groups, and the occurrence of much social behaviour, even though there is no attempt to recreate the conditions of the Amazon forest (59).

I do not suggest we should regard ourselves as having carte blanche to collect or capture any animals we like. As a working rule, we should assume an animal is well off in the wild, is best off there, and is likely to be much less well off, even very badly off, in captivity. But this does not mean we know that such applies to every case. It is quite possible that some animals can be kept quite well or very well in captivity; and we can only really judge, not by categorical statements (60), but by various evidence and approaches such as I attempt to outline in Chapter 9.

NOTES TO CHAPTER 7

1. E. Hindle, Foreword to H. Hediger, Wild Animals in Captivity (New York: Dover, 1964).
2. An argument as likely to be used in defence of any form of captivity, as in this example: Ashley, P., "No room for sentiment down on the intensive farm", The Guardian 23 March 1981. ("It is, for some extraordinary reason, preferable to leave the poor brute in the open, prey to the elements and its wild brethren..., to hunger and to thirst, to be tantalised by flies...)
A hundred years or so ago Frank Buckland claimed at least points 1, 3 and 4 of the animals at the London Zoo (G.C. Bompas, Life of Frank Buckland (London: Smith, Elder, 1885), p 382).
Even writers critical of zoos have accepted in principle such claims as these, e.g. B. Jordan and S. Ormrod, The Last Great Wild Beast Show (London: Constable, 1978), p 14.
3. Richard Adams, letter to The Independent, 20 Aug 1987.
4. Sir Thomas Wyatt, lines from Songs and Lyrics No. XXIII (G. Bullett (ed), Silver Poets of the Sixteenth Century (London: Dent, 1947), p 31).
5. D. Lack, The Natural Regulation of Animal Numbers

(Oxford: Clarendon, 1970), pp 88-106, espec. pp 88 and 93-94; see also, for reference to Long-tailed Field Mouse surviving three or four times longer in captivity, E. Hindle, Foreword to Hediger, op. cit., p vii.

6. J. Van Lawick-Goodall, In the Shadow of Man (London: Fontana/Collins, 1973), p 260-262.

7. D.M. Jones, "Welfare in the wild and in captivity: how do they compare?", British Veterinary Association Animal Welfare Foundation Symposium, The Welfare of Animals in Captivity, May 1987.

8. Charles Darwin, The Origin of Species (Harmondsworth: Penguin, 1958; first published 1859), p 116 ff.

9. Chris Mead, "Do birds mourn?", BBC Wildlife 5, 7, July 1987, pp 360-361; also several letters giving possible examples of mourning in birds, BBC Wildlife 5, 9, Sept 1987, p 485.

10. For a useful discussion both of the necessity of such killing and of zoos' reluctance to admit it, see J. Cherfas, Zoo 2000 (London: BBC, 1984), pp 119, 122.

11. K. and K. Ammann, Cheetah (London: The Bodley Head, 1984), p 111.

12. Kenneth Clark, Animals and Men, their relationships as reflected in Western art from prehistory to the present day (London: Thames and Hudson, 1977), p 214, plate 195: "Lion devouring a horse" by George Stubbs.

13. Cf M. Midgley, Beast and Man (Hassocks, Sussex: Harvester, 1979), p 25 ff.

14. Rattray Taylor, op. cit. (chapter 4, p 93).

15. Jones, op. cit.

16. Smith, op.cit., pp xv, xvi. R.M. Lockley (The Private Life of the Rabbit (London: Corgi, 1973), p 168) gives a brief account of wild rabbit diseases: they die from coccidiosis in large numbers, suffer from liver flukes, and "stomach worms which produce gastritis and anaemia". M. Rothschild and T. Clay (Fleas, Flukes and Cuckoos, A Study of Bird Parasites (London: Arrow, 1961), p 17) give a staggering list of bird parasites: lice, mites, flies, tongue-worms, fleas, mosquitoes, midges, bugs, leeches, ticks, numerous types of protozoans, and "varieties of worms...located in almost every tisue of the body", adding how large the numbers of a single parasite in one host can be: "over 10,000 nematode worms...from the intestine of a grouse and more than 1,000 feather lice from the plumage of a single curlew". See also Fraser Darling (Island Years (London: Pan, 1973), p 57) for how free-living sheep (presumably exposed to the kind of thing wild animals experience) suffer from blowflies.

17. E.g. Rhesus monkeys and other macaques are almost universally infected (I presume in the wild) with lung mites but apart from a "chronic cough...do not appear to be distressed" (Vet Record 22.1.72, p 6).

18. E.g. a case of sea-lions found to have a heavy lung-worm infection judged by a veterinarian to be mainly

caused by the stress of having just been transported.

19. E. Hindle, Foreword to Hediger, op. cit., p vii.

20. The abnormality of being wholly free of pathogens is recognised in these words from the Institute of Animal Technicians Manual: "As biological tools, SPF (i.e. "specified pathogen free") animals are physiologically and structurally identical with conventional animals. They differ only in the fact that, as produced, they are free from parasites and their natural infections..." (D.J. Short, and D.P. Woodnott, The I.A.T. Manual of Laboratory Animal Practise and Techniques (London: Crosby Lockwood, 1969), p 427).

21. J. Beveridge, "History" in Official Guide to Linlithgow Palace (Edinburgh: HMSO, 1934, 1976), p 22.

22. E.g. Reindeer in their natural northern habitat do not harbour protostrongyllids. They have no natural resistance but are safe because there are few molluscan intermediate hosts there. In zoos, likely to be in less northerly latitudes, they "often show high levels of infection" (A.M. Dunn, "The wild ruminant as reservoir host of helminth infection", Symp Zool Soc Lond (1968), No 24, pp 221-248). The infection of Saiga antelope in zoos by the nematode Dictyocaulus would be another example (ibid).

23. Vet Record 22.1.72, p 6: "Nutritional disease is not very common in anthropoid apes but trouble has been experienced at London Zoo with rickets (including foetal rickets) in baby orang-utans, even where the mother has been normal" (ibid, p6). L. Williams had harsh words to say (eighteen years ago) about the condition of primates in general at London Zoo and elsewhere in captivity (Man and Monkey (London: Panther, 1969), pp21-22. If nothing else, his opinion suggests that an account of zoo medicine which gives an impression that zoo animals because of the veterinary care they receive are all in excellent health is far from a complete picture of the situation. His opinion may be extreme but merits respect because of the high degree of health - acknowledged by London, apparently - of the animals at Williams' Woolly Monkey Sanctuary (ibid, p 22).

24. E.g. A.J.E. Cave, "An unrecorded specimen of the Javan rhinoceros (Rhinoceros sondaicus)", J.Zool.,Lond. (A), 1985, Vol 207, p528.

25. For example of veterinary interest, see R.N. T-W-Fiennes, "Tuberculosis of a puma cub (Felis concolor) accompanied by skeletal deformities resembling rickets", Proc.zool.Soc.Lond., Vol 133, March 1960, p 595. For, perhaps, the relative haphazardness of zoo medicine, see M.E. Fowler, Zoo and Wild Animal Medicine (Philadelphia: Saunders, 1978), passim. See also D.M. Jones, "The veterinary surgeon in the zoo world", The Veterinary Record, 4 Dec 1982, for the great changes in veterinary practise in zoos in recent years, and how at one time there was little motivation because of the ease of replacing animals.

26. Cf R.S. Downie and E. Telfer, Caring and Curing (London: Methuen, 1980), p 15.
27. See however section on "Condition" in entry "Muscle" in W.C. Miller and G.P. West, Black's Veterinary Dictionary (London: Black, 1972), p 570: I wonder how far this state, e.g. that of a race-horse at the peak of its training, is that of a wild horse needing to escape predators. See also entry "Exercise" in ibid, p 316: "...all animals in health will take exercise of their own accord if allowed a free range..."
For a different sense of "fitness", see R.K. Chesser et al, "Management and maintenance of genetic variability in endangered species", Int Zoo Yb 17, 1976, p 149: "Fitness is a measure of the animal's contribution to the next generation."
28. For use of this term, see M.S. Dawkins, Animal Suffering, The Science of Animal Welfare (London: Chapman and Hall, 1980), p 57; see also Fiennes, op. cit., p 167 for general account of Selye's GAS.
29. See Fiennes, op. cit., p 170.
30. Dawkins, op. cit., p 62.
31. World Health Organisation, Constitution of the World Health Organisation (New York, 1946), quoted in F. Brockington, World Health (Harmondsworth: Penguin, 1958), p 19.
32. E.g. Prevention and health: everybody's business, A reassessment of public and personal health (London: HMSO, 1976), p 42.
33. Fiennes, op. cit., p 21.
34. Ibid, pp 21-22.
35. In fact, zoos would regard it as responsible to cull poor specimens, and indeed this is necessary as part of keeping the captive gene pool as like the wild gene pool as possible.
36. The provision of the right food is a large topic in itself; see H. Hediger, Man and Animal in the Zoo, Zoo Biology (London: Routledge and Kegan Paul, 1974), pp 128-155, espec. p 133 ff, and G. Durrell, The Stationary Ark (London: Fontana/Collins, 1977), 58-76, espec. p 69 ff, for widely diverging views on the virtues of synthetic food such as the "Radcliffe diet" as contrasted with more natural, but less nutritionally rich foods.
37. Jones, op. cit.
38. D. Morris, "The response of animals to a restricted environment" in D. Morris, Patterns of Reproductive Behaviour (London: Panther, 1972), pp 603-630 (first published Symp.Zool.Soc.Lond. 13 (1964), pp 99-118); Morris does not claim the distinction between opportunists and specialists to be more than approximate.
39. UFAW Symposium, The Welfare and Management of Wild Animals in Captivity (Potters Bar: UFAW, 1973), p 100.
40. See for the seriousness of foxhunting T. Carroll, Diary of a Fox-hunting Man (Hamish Hamilton, 1984).
41. See, e.g., T. Rowell, The Social Behaviour of Monkeys (Harmondsworth: Penguin, 1972), p 135 ff.

42. Dawkins, op. cit., p 59.
43. Cf J. Benson, "Duty and the Beast", Philosophy 53, 206, Oct 1978, pp 529-549, espec. p 547.
44. Cf S.R.L. Clark, "The Rights of Wild Things", Inquiry 22, 1-2, Summer 1979, pp 171-188, espec. p 186.
45. Ashley, op. cit.
46. As recently by Richard Adams, letter in The Independent, 20 August 1987.
47. Ibid: Adams seems to suggest an animal's adaptations are the entire product or result of its environment.
48. They are remarkably in this respect like human artifacts: see examples in chapter 11.
49. Sir Gavin de Beer, Adaptation (London: OUP, 1972), p 13, quoting Henri Milne Edwards.
50. Ibid, p 10.
51. Ibid, pp 10-13.
52. Cf this comment of Darwin's: "If all the individuals of any species were habitually to suffer to an extreme degree, they would neglect to propagate their kind..." He goes on to suggest that a generous ration of pleasure will aid animals' success and so be selected (Appendix II in F. Darwin (ed), Autobiography of Charles Darwin (London: Watts, 1937), p 146).
53. As emphasised by W.J. Jordan, "Altruism and Aggression in Animals" in D. Paterson and R.D. Ryder (eds), Animals' Rights - a Symposium (Fontwell: Centaur, 1979), pp 147-153.
54. A. Hardy, The Biology of God (London: Cape, 1975), pp 37-45 on behaviour's playing a role in evolution; also R.F. Ewer, "Adaptation" in New Biology 13 (London: Penguin, 1953), pp 117-9.
55. de Beer, op. cit., pp 5-6 (genetic adaptability); pp 10-13 (examples of adapting, and of failing to, to a changing environment).
56. J. Clutton-Brock, Domesticated Animals (London: Heinemann/British Museum (Natural History), 1981), p 191.

57. M.W. Fox, Behaviour of Wolves, Dogs and related Canids (London: Cape, 1971), pp 204-205.
58. E.g. perhaps, M. Jack, letter to the Times Literary Supplement, 27 Feb 1987. The writer objects to, as he considers, Professor Clark's regarding the keeping of pets and horses as "morally acceptable". 'Pets... have no more "consented" to their role in society than other animals have "consented" to being eaten...'
59. Leonard Williams, pers. comm.
60. Such as some in Adams, op. cit.

Chapter 8

WILD AND DOMESTIC ANIMALS

Jamieson remarks that there is a moral presumption against keeping wild animals in captivity, and is far from alone in implying that the keeping of wild animals is inappropriate or immoral in a way that keeping domesticated animals is not (1). I want to examine the distinction between wild and domesticated animals, and to try to show that the distinction is much less real than often imagined, and the two categories less absolute than often assumed. In as much as wild and domesticated animals are different, we should think of them as on a continuum, with zoo animals somewhere in between, no doubt fairly near the wild end of the continuum. But in the cases of some species the distinction seems hardly appropriate at all.

Very few animals (about fifteen or so) would usually be regarded as having been successfully fully domesticated (2). Those that have been, I suggest, were pretty well suitable from the start, and have therefore probably been changed very little in essentials by the process of domestication: they did not need to be, because they were suitable to start with, and if they had not been, they could not have been domesticated in the first

place. I think there is a good deal of evidence to support this. Sheep were suitable, it seems, because, unlike deer and antelopes, they were not territorial and had a single leader, as well as being mountain-living and in connection with this not very fast running and not very nervous of predators (3). Reindeer, exceptionally among deer, could be domesticated because of their tendency to form large herds and their not being territorial (4). Domestic pigs have been found by Wood-Gush and Stolba to retain an astonishing number of their natural behaviour patterns (see 9.3 below). Poultry similarly, I suspect, have retained a great deal of the natural behaviour of Indian jungle fowl, such as dust-bathing. Kiley-Worthington has stressed how much of the mother-young relationships in, for example, horses and cattle is fairly unchanged from the wild state (5). The way sheepdogs manage sheep seems closely related to the way wolves would "manage" caribou (6). The European hamster has never been domesticated because it is just too "unfriendly"; one family of Golden hamsters was dug up in Syria, turned out to be (I presume) tame or readily tameable, and as a result there is now a vast captive population of pet and laboratory Golden hamsters descended from that one family. (According to Dembeck, they were rediscovered following a reference in "ancient chronicles" about a "kind of Syrian mouse" kept by children in ancient Assyria and Anatolia; if it is correct, this intriguing account fits my case well (7).) The European wildcat seems highly untameable (much less so

than a cheetah or even perhaps a lion), and thus seems unlikely to be the ancestor of the domestic cat, much of whose character I would have assumed to have been already there in the wild ancestor and not to be the result of selective breeding (8). However I admit to my case being a little shaken by the fact that the European wildcat (Felis silvestris) is now regarded as the same species (though previously believed not to be) as the African and Arabian wildcat (formerly called Felis libyca), but the two are at the extreme ends of a cline (9). However the "southern form" of the species is still regarded as the likely ancestor of the domestic cat, and I imagine that selection has for some reason kept the European population fiercer than the other. The European wildcat in fact can be tamed if taken as a very young kitten, and of course it can interbreed with the domestic cat (10). So in some degree domesticated animals are particular wild animals which were suitable to be kept by man, and are still much as they always were.

Some wild animals, i.e. other than those few which have been domesticated, are in fact capable of having a relationship with man while still clearly being a wild animal. I suggest as examples some of the gorillas studied by Dian Fossey, chimpanzees studies by Jane Goodall, cheetahs as referred to in a Natural History Programme, Radio 4, lions and even a leopard successfully released by Joy Adamson, tigers at Howletts and Woolly monkeys at Williams' sanctuary (11).

Animals in zoos are only relatively wild. Helen Spurway believes it is impossible to breed a genuinely wild animal in artificial conditions (12). She stresses how genetic changes must occur, how natural selection is still operating, or at least an unintended artificial selection. I think she is perhaps over-stressing the genetic change. As I said above, I think the extent to which even long artificially selected animals remain behaviourally unchanged is remarkable. But clearly she is right that there can not be any strictly wild animals in captivity. Animals in zoos have either been bred in captivity, or have been taken from the wild. In the latter case, the situation is never really satisfactory until an animal has settled down, become adjusted to having people near, so that it is fairly relaxed, probably fairly tame, and feeding properly, etc (13). (If it breeds, this is still better as a sign of its having settled down.) So although this is not a genetic change as such, it is a first stage of domestication. It was as much as elephants and cheetahs ever had in long centuries of semi-domestication.

This is genetically "connected", in as much as:

a) the animal would not be there if it had not the right genetic makeup for being able to adjust or adapt to captive conditions (others will have died earlier, perhaps because of the stress of people being near, etc);

b) the animal may breed: if it does, then one will be selecting, unavoidably to some extent, for animals that

can adapt to captivity. And this clearly will be a step towards domestication. So when animals are born in captivity, which we all regard as the most satisfactory situation in captivity, they are slightly domesticated. At the same time, zoos are right to try to alter them as little as possible. They should not be selectively breeding, and this is an ideal still, to some extent, to be realised in the future (see chapter 13, Zoos and Conservation). At the same time again, even though the animals are slightly domesticated, there is no reason why it should necessarily be impossible in the future in any specific case to reintroduce them, provided this is tackled carefully. For example, plenty of even domesticated animals have gone feral. It depends on the individual. But it is all the more likely that an animal which has not been selectively bred seriously should be able to go back to the wild, provided a) if it is a carnivore, it is given opportunity to practise killing, and perhaps hunting (which I will discuss in chaper 13); and b) provided life in captivity has not been too dull, producing dull animals such as, for example, Mountfort thinks that zoo tigers tend to be (14). I think he is overstating his point here, but I would agree that dogs and cats can get, though domesticated, in some ways a more natural life than many zoo animals do: e.g. cats exploring freely, catching birds sometimes, etc. And this is something that zoos must pay attention to, i.e. endeavour to enrich captive environments (as we will see in chapters

9 and 10).

Now if it acceptable to keep "fully" domesticated animals in captivity, why is it wrong to keep slightly domesticated animals in captivity? Of course, one can say that much captivity of domesticated animals is wrong, e.g. the keeping of poultry and pigs in intensive systems, and I would entirely agree. But then these conditions are such as no zoo should even contemplate; and as I have said, hens and pigs show most of their natural behaviour patterns given the opportunity (15).

One might say, too, that only really "free" or "interesting" keeping of domesticated animals is acceptable, such as that of cats and dogs, or horses, or cows perhaps in fields. I would agree, again, to some extent that (as we will see in Chapters 9 and 10) what zoos have to do is get as near as they can to providing comparably good conditions. I write here of "keeping" cats and dogs rather than their "captivity", for, as Stephen Clark has pointed out to me, one can hardly call, say, a cat in a household with a cat-door "captive". I think cats probably the most independent of all domestic animals, and that indeed their relation with us is symbiotic. But what I am arguing against here is the validity of the assumption that keeping "wild animals" captive is particularly objectionable as distinct from animals in general.

It is true that zoo animals have not (or should not have) become genetically adapted to captivity as, in some

degree, domesticated animals have. But a) as I have been showing, domesticated animals are much less changed than we might think (and certainly than, for example, Callicott appreciates (16)); b) this is something zoos must take acount of - it is a challenge to them to provide suitable conditions given that their animals are not very different from their wild conspecifics.

And I would also say (in reply to my own question above about keepng slightly domesticated animals) that we should go by various criteria, as we will see in chapter 9. We should not beg the question by assuming that it is not possible to keep our relatively wild animals. We should regard it as an open question, and look at how we can decide whether they are well enough off, and what conditions they require; and then (if we are working in zoos) it is up to us to do our utmost to provide the right conditions and, should this be impracticable or impossible, to avoid (somehow) keeping the animals.

I appreciate that I may seem to be trying to have it both ways - to say that animals in zoos are not wild and therefore it is aceptable to keep them; and that they are wild, and that therefore it is very useful conservationally, educationally, and so on, to keep them. But I think this is the situation, even if it is something of a tightrope to walk. There is no hard and fast line between wild and domesticated animals, and many examples of animals in a semi-domesticated state which show this, which are in some relationship with humans, such as feral

pigeons, robins and many wild birds, storks in Holland (where captive bred birds have been successfully released), and so on.

I do not want to imply that wild animals do not also have distinctive qualities - most obviously, in many cases, an enormous alertness and readiness to flee quickly, which one only needs to try catching a house mouse as opposed to a pet one to appreciate. But I think my general point stands: that it is much too simple to dismiss the keeping of wild animals as something quite obviously objectionable in a way which is not applicable to domesticated animals (17).

NOTES TO CHAPTER 8

1. Jamieson, op. cit. (chapter 1).
2. J.C. Bowman lists fifteen in the Old World: dog, reindeer, goat, sheep, cattle, water buffalo, yak, pig, ass, onager, horse, camel (two species) and elephant (two species) (Animals for Man (London: Arnold, 1977), pp 34-35).
3. J. Clutton-Brock, Domesticated Animals (London: Heinemann & British Museum (Natural History), 1981), pp 55-6.
4. Ibid, p 132.
5. Marthe Kiley-Worthington made the comment about mother-young relationships during her paper given at a Society for Applied Philosophy Workshop on Ethics and Veterinary Practice at the Veterinary School, Glasgow University, 7 March 1987.
6. G. Vines, "How sheep dogs manage sheep", New Scientist, 10 Sept 1981.
7. Dembeck, op. cit. (chapter 2), p 357. Unfortunately Dembeck gives no sources. For whether a hamster can correctly be regarded as domesticated, see note 17 below.
8. For wildcat fierceness, see M. Tomkies, "Wildcat Wilderness", Wildlife 23, 8, August 1981, pp 24-30.
9. Clutton-Brock, op. cit. (p 185 above, note 56), p 107.
10. David Stephen, Highland Animals (Inverness: Highlands and islands Development Board, 1974), p 79.
11. Dian Fossey, Gorillas in the Mist (London: Hodder and Stoughton, 1983); see also Ian Redmond, "The Good

Relation", BBC Wildlife 4, 3, March 1986, pp 103-107, espec. p 104. for how Dian Fossey "came to be accepted by the gorillas as a harmless presence and, later, almost an honorary group member".

van Lawick-Goodall, op. cit. (p 96 above, note 54).

Joy Adamson, Born Free, A Lioness of Two Worlds (London: Collins/Fontana, 1962), e.g. pp 122-123.

John Aspinall, "The Howletts Gorilla Bands", International Zoo News 195, 33/1, Jan/Feb 1986, pp 11-19, espec. p 13; J. Aspinall, The Best of Friends (London: Macmillan, 1976).

Leonard Williams, Man and Monkey (London: Panther, 1969), p 13.

12. H. Spurway, "Can wild animals be kept in captivity?", New Biology 13 (London: Penguin, Harmsworth, 1952), pp 11-30, espec. p 11.

13. H. Hediger, Wild Animals in Captivity (New York: Dover, 1964), p 154 ff.

14. G. Mountfort, Back from the Brink, successes in wildlife conservation (London: Hutchinson, 1978).

15. See J. Cherfas, "The nature of the beast", New Scientist 115, 1578, 17 Sept 1987, p 80, for an admirably clear statement of the inconsistency in recognising that domesticated pigs (for example) retain much natural behaviour and therefore require conditions allowing its expression, and at the same time maintaining that tigers (for example) in zoos lose their natural behaviour and therefore can not possibly be successfully reintroduced.

16. J. Callicott, "Animal Liberation: A Triangular Affair" in D. Scherer, and T. Attig, Ethics and the Environment (Englewood Cliffs, N.Y.: Prentice-Hall, 1983), p 67. He objects to the complaint that the natural behaviour of chickens and bobby calves "is cruelly frustrated on factory farms. It would make almost as much sense to speak of the natural behavior of tables and chairs." Callicott seems to me under a serious misconception about the degree to which even highly selectively bred animals like poultry still retain much of their natural behaviour

17. Stephen Clark is unconvinced that a Golden hamster is domesticated, rather than just not very aggressive to humans, and asks if there is not a difference between "mild-mannered", "tame" and "domestic". He has also suggested to me that:

domestic = (1) likely to stick around human households;
(2) tending to form social bonds with humans;
(3) dependent on human support (or at least preferring to depend...).

He asks whether these factors do not make a distinctive moral difference, in that relatively wild animals do not like to stick around, do not form social bonds and do not willingly depend on humans.

I would reply, concerning hamsters, that Bowman (op. cit., pp 26, 40-41) clearly regards laboratory rats as

domesticated. He gives as the distinction "usually made between domestication and taming.. that the former includes control of the reproductive phase of the life cycle and selection of parents while taming does not" (op. cit., p 26).

My general point would be that "domestication" covers a range of cases. Hamsters do not form social bonds with humans to the extent that dogs do - neither are they social themselves, which dogs are. But the fact they can be kept easily as pets, and especially that they readily breed in captivity, makes them "domesticated animals" certainly by contrast with European hamsters. (Russian hamsters, now available as pets, are social.) I have not been in this chapter concerned to defend the keeping of, e.g., hamsters against someone who regarded it as immoral. I have only been concerned to make the point that, if you regard keeping Golden hamsters as morally acceptable (as most people would) and also object to all keeping of relatively wild animals as immoral, you are making a far from clearly justifiable distinction between wild and domesticated animals, in particular because Golden hamsters, when first discovered as wild animals, turned out to be virtually tame from the start - "pre-domesticated" one might almost say - and in this respect are probably not wholly unlike several of the animals often kept in zoos which also, even sometimes when born in the wild, can adjust very readily to captivity.

My examples of Dian Fossey's work (see note 11 above), and of John Aspinall's contact with his gorillas, were precisely to try to illustrate how some kind of bond can be forged between a human and a totally or virtually totally wild animal. Again I would say that a great many wild or virtually wild animals do choose to stick around human habitations (garden birds, foxes, storks, baboons at Treetops, etc), and similarly that many would probably accept human support (as wild birds do, of course) if it were offered. This is not to say that it is necessarily desirable for it to be offered, or that there may not be strong reasons against attempts to forge close relationships with wild animals. If though one says that one can not do the latter because this process itself alters them from being wild animals, then this is close to playing with words. I would say that the three tendencies of domestic animals that Professor Clark notes above do in general mark distinctions between wild and domestic animals, but that such tendencies are far from marking absolute distinctions, that they can sometimes be shown by animals that are virtually wild.

Chapter 9

CRITERIA FOR WELLBEING

INTRODUCTORY

I want in this chapter to examine various criteria by which the wellbeing of animals in zoos - and anywhere else too - may be judged. In the next chapter, I shall examine the keeping of various animals in zoos in the light of the criteria. All I am seeking to establish in this chapter is:

a) That animals in captivity may be well off; may even be better off in some individual cases than in the wild, though this is not very likely; and that it is reasonable for us to regard their degree of wellbeing as something to be established by the application of the various criteria, rather than by the assumption that they must be badly off just because of being in captivity.

b) That the criteria do present difficulties, which I hope to elucidate a little, but that used in conjunction they are likely to be a fairly reliable guide.

c) That natural behaviour has a strong claim to be the pre-eminent criterion, despite the difficulties of specifying exactly what we mean here by "natural".

The criteria are to help us:

i) in deciding what conditions we should provide;

ii) in judging how well off the animals are, and this itself covers two things:

1) how suitable the conditions are;

2) the degree of wellbeing of the animals themselves.

(You could, that is, have an animal in excellent conditions, but where there was still something wrong with the animal, for "personal reasons" as it were: e.g. a health problem or other inadequacy of genetic origin, not traceable to the conditions. Or you might have, as with humans, an animal which did not fit into theoretically ideal conditions because of individual differences not amounting to ill health. Animals vary as much as humans as we have seen.)

iii) in deciding what kinds of animals we should or should not keep. This is perhaps the most important of the three decisions the criteria guide us in making.

The criteria considered will be:

1) Health;

2) Breeding;

3) Natural behaviour;

4) Abnormal behaviour;

5) Direct indications;

6) General or theoretical appraisal of wellbeing.

Of course the arrangement of these criteria is to some extent arbitrary. They are fairly close in essence, I would say, to Dawkins' criteria for her somewhat different purpose in Animal Suffering (1). The main difference is my determined stress on, if any of them is pre-eminent,

natural behaviour, and I will discuss this further in due course.

9.1 HEALTH

Our zoo animals should receive proper veterinary attention: we owe responsibility to the animals we keep to look after them as best we can. Ill-health, injuries, etc are unpleasant for us, and we have no reason to suppose this is not so for animals also. This is a "plus" for animals in zoos: a) they would get no veterinary care in the wild; b) animals do not always get it in, for example, farming establishments - e.g. the situation where an animal is soon going to die anyway so that there is no economic point in giving it veterinary help; or the situation of hens in intensive husbandry systems (2). At least the animals in zoos are normally known as individuals in some degree, and are checked every day for signs of ill-health. If their physical health is good, this is a sign of conditions being at least fairly good. It is an indication of general wellbeing, in some degree even of mental health; an indicator that an animal is not experiencing much ill effect from its captive situation.

Length of life is obviously relevant; occasional individuals no doubt will die early however good the conditions. But in general as the zoo situation is free from the dangers of wild life - predators, possibility of starvation, drought, etc - then animals ought to live out pretty well their potential life spans. I am not here

thinking necessarily of the question of putting down an animal before the end of its natural life; there could be a case for this for the animal's own sake, and certainly there would be were it seriously ill. (I would say the same in principle for humans (3).) This is a matter of opinion to some extent (and in any case as far as zoos are concerned it is often going to be decided out of necessity on other grounds - see discussion in chapter 13). But if animals of a particular species have generally short lives in captivity, or certain kinds of captivity, then this is an indication that something is not right - so this would be an "indictment" under the health criterion.

We should not be too carried away by an "over-clinical" stress on hygiene, or freedom from parasites, etc. We have seen how some animals can be provided with hygienic conditions which are dull and sterile. It is bad if our keeping them in good health requires such a cost. To some extent these things go in fashions: there seems to have been a stress in the 1960's on the need for great hygiene and the danger of infection. This was one reason why chimpanzees tended to be kept only in pairs (4). Today it is recognised, I think, that it is better to have chimpanzees in a group even at a higher risk of infection. Animals should not have to live "sterile" lives for the sake of their health (which would be to make their mental health "pay for" their physical health). But we must be responsible - we must indeed

consider the animals' interests: hard standing may be very good for horses, because of hoof wear as well as helping to avoid parasite build-up . They should not be kept on grass just to please the public (5). But presumably they ought to be on grass sometimes.

Mental health is likely to include the living of a satisfying life: this connects with the natural behaviour criterion. The veterinarian can also go by various indications: he can probably recognise a "happy" dog, a well adjusted dog, and other animals similarly. I think it is true that vets are much more concerned now with all aspects of animals' wellbeing, not just their physical health in a narrow sense.

We do not want an animal to be unduly stressed; this will of course affect it physically. But I say "unduly" because, as we saw in chapter 7 on Health, while serious stress is certainly detrimental, an occasional mild stress is quite good for health; also, the ability to show a mild stress reaction is itself part of health. I presume racehorses and some working dogs (such as police dogs) in the course of their lives will be mildly stressed, or even quite seriously stressed (for limited periods of time, one hopes). This is hardly going to be, or hardly should be regarded as, injurious to their health. I do not know what exactly we can do for zoo animals in this regard, but we should give this matter our attention.

Stress of course can be measured physiologically, and physiological indications could well be regarded as

another important criterion of wellbeing, as Dawkins gives them as a criterion of suffering (6). I would rather include them as a supplement to health, in regard to zoo animals, because zoos, I think properly, tend to avoid interference of a "laboratory" kind with their animals as much as possible, though anaesthetising, often by dart gun or blowpipe, by a veterinarian is sometimes necessary. But such physiological evidence as a rise in the heart beat, or a build-up of adrenalin, would be very useful and important. An example given by Duncan of heart monitoring of two different breeds of hen artificially stressed with an inflated balloon showed that one breed was more upset than one would have thought from behavioural indications alone (7). Some individual humans can be much more upset than they show, at least to somebody who does not know them well. A means of monitoring a rise in the heart beat or blood pressure would obviously be a useful aid to the diagnosis of such conditions. Tame, harmless snakes are favourite animals for zoo educators to allow children or others to touch, and such experiences I think can be very valuable (for the humans concerned), without being detrimental to the snake. But one should not be doing it unless the snake too, as far as we can judge, is enjoying the experience, or at least is not seriously upset by it. There is evidence that snakes can be upset by a long period of handling, and this is very much to be guarded against.

Obviously much here could be discussed further,

including how one defines health, but I have already considered the matter in some degree in 7.2. I do think that physical health as such is a good criterion of an animal's wellbeing, and I think this is unlikely to be controversial. It is one important indicator to be used in conjunction with the other indicators I look at below, with some of which, such as natural and abnormal behaviour, it indeed overlaps.

Of course to judge an animal's health accurately will require the fullest knowledge of that animal's biology, natural behaviour, natural way of life and environment, that we can manage. But this should be obvious from my previous discussion of health.

9.2 BREEDING

Breeding of animals in zoos is desirable because of the importance:

a) of zoos' being at least self-supporting;

b) of their being able to assist conservation.

There may be an excess in captivity, or in the wild, of a particular species so that we may not wish to breed from it; or we may not wish to breed from certain individuals because they are poor specimens, or because they have already been bred from enough for the health of the captive gene-pool. But this is a recognition of the need in some cases to stop breeding. Naturally we ought to have reached the stage where we are able to breed a captive

species if necessary.

9.2.1 But my present questions are: how far does the fact an animal breeds inform us, or our desire to encourage it to breed dictate to us, what the animal's conditions should be? And how far does an animal's breeding indicate that it is in a state of wellbeing?

Hediger speaks of breeding as, in his opinion, the "only one criterion for suitable biological conditions", even suggesting it is like "arithmetical proof to the mathematician" (8). This is surely to weight breeding as a criterion too highly, but it still is very important, for the following reasons. (I shall then look at some problems with it.)

1. Breeding is an important, a central, part of natural behaviour, part of the "full life" of an animal (though not all animals would breed in the wild).

2. It can be very difficult to get "wild" animals to breed in captivity. Domestic animals presumably became domesticated partly because of their readiness to breed in captivity or close to man, but very few animals ever have been domesticated. With an animal that has not, by selective breeding, been adapted to life in captivity (9) one is most likely to achieve success (if it does not breed readily) by study of its breeding in the wild, and by varying the captive conditions as seems appropriate or promising. Thus one is here either providing conditions like the wild, or else an effective substitute for the

wild.

3. Many animals can be easily put off - e.g. killing their young if disturbed or upset - so their successful breeding does seem an indication that at least the parents are relaxed (10).

4. Successful breeding is some indication that the animals concerned are not deleteriously inbred.

9.2.2 I will now list and briefly consider some problems with breeding as a criterion:

1. Breeding as a criterion is hardly applicable to domestic animals, because: a) it is likely that an initial readiness to breed in close proximity to man was one condition leading to their domestication in the first place; and b) because they will have been selectively bred to breed well in captivity. I think of a newspaper article on the scandal of "puppy farms": bitches breed very readily even in bad conditions. Guinea-pigs, gerbils and so on, even though only recently domesticated, and to a much lesser degree, still no doubt have become domesticated partly because they do breed so readily. Again some domestic animals such as pigs and poultry not only survive but breed in what can only be called horrifying conditions (11). A sort of "forced breeding" can be practised with domesticated animals; its occurrence is the very opposite of any indication of their conditions being good. Now we could be selectively breeding (i.e. unwittingly) our relatively wild zoo animals <u>for</u>

breeding in captivity (12) so perhaps this point about domesticated animals could apply in some cases to zoo animals.

2. Some animals breed in apparently bad conditions, e.g. lions in "rabbit hutches" (13). Hediger gives example of lions and certain other mammals, such as an anteater, in small "menagerie-type" cages, and also birds of prey in cages they cannot fly in (14). Williams speaks of Rhesus monkeys which breed readily at London zoo as being comparable in this to the Victorian working class in their ability to breed in slum-type conditions (15). I suppose with the lions they must at least be relaxed to be breeding, so their conditions must be good to that extent.

3. Breeding could actually be a response to bad conditions (as in some protozoans). Presumably the proverbial high human birth rate in slums can be seen as a response to such conditions, or more directly to any combination of despair, boredom or ignorance. It does show that even slum conditions are not as bad as they might be; they are not "rock bottom". Given poor enough conditions, as for the poor in some parts of Europe in the seventeenth century, partly as a result of a deteriorating climate, human breeding falls off (16). We could be selectively breeding (unwittingly) for breeding in bad conditions: presumably the animals concerned would have to be good captive breeders to start with, as lions seem to be, and perhaps Rhesus monkeys (in view of Williams' comment above).

However the situation with animals is more complicated still. It may be, for example, with caracals that they come into oestrus as a result of poor conditions suddenly followed by an improvement, as in the desert: i.e., a rather poor diet suddenly improved. Again the female may come into oestrus very quickly again if her young cubs are taken away, even while she is still lactating. Thus a high breeding rate would hardly in this instance demonstrate good conditions. With ring-tailed lemurs, on the other hand, there is evidence that an improved diet increases the chance of male young being born (males presumably being, as it were, a comparative luxury to dispense with in lean times). Similarly, with Grevy's zebras, it seems that the better the condition of the female, the more likely she is to have male young: a way in which the zebras respond to better or poorer conditions; a female has a much higher chance of mating and breeding than a male, so in poor conditions it is better just to have female young, which still stand a fair chance of breeding. Another domesticated animal example illustrates how a high rate of breeding does not necessarily indicate good, or at least natural, conditions: if sheep are left on a hillside, a ram will mate with only a few ewes; but brought down to an enclosure, he may mate with many more (17).

4. Breeding in captivity could even (so it has been suggested) just be out of boredom. Certainly masturbation can be, and perhaps mating, but it seems unlikely that

successful breeding - i.e. the whole cycle of courtship, mating, birth, perhaps nest-building, and rearing of young - could be, firstly because so many animals are highly "fussy" about the right conditions for successful breeding, and secondly because breeding, as a centrally important occurrence in animals' lives, and likely, for reasons of natural selection, to be highly satisfying, can hardly be seen itself as a response to boredom.

5. Breeding in captivity sometimes only occurs with "artificial" assistance from us. I think we can distinguish between artificial and "natural" breeding. Only natural breeding will do as a criterion of good conditions, though artificial breeding may still be conservationally desirable.

6. A problem, but rather with the public function of a zoo rather than with the application of breeding as criterion, is that many animals breed much better away from the public. Obviously it is up to zoo personnel to ensure that breeding animals are not disturbed by the public, as they should try to prevent any animals being. Another problem is the preference of some animals for "non-natural" conditions for breeding over natural ones. But this I will look at in the next chapter.

7. One may get more breeding as a result of interference with the natural grouping. Capuchins are highly social, but if you keep them in pairs you may have those various pairs breeding successfully, while if you have them in a more natural large group you may find that

only, say, a dominant pair breeds. Certainly it has been found with marmosets that, in the wild or in captivity, a single dominant female breeds, suppressing the ovarian cycles of her subordinates by her aggressive behaviour (18). So here breeding by only one female in a group as opposed to breeding by more of them is a direct indication of natural social conditions and presumably good conditions, if we assume conditions are better the more they approach those natural to the species. We might perhaps feel this was an exceptional case where women's lib (though it would be "lib" from the influence of the dominant female) could well be extended to marmosets. At any rate, while breeding by the dominant female would here be a criterion of natural or good conditions, breeding by the other females would not be: it would indicate we were keeping them in unnatural groups, i.e. separate pairs. I understand it could be similar with a very different species, alpacas: i.e., kept in a presumably natural herd, only one or two young a year will be produced; kept, less naturally, in pairs, the breeding would greatly increase. It may be that a similar situation would apply with porcupines.

The point, I think, shown by these examples is that degree of breeding by itself is not a reliable criterion of good conditions; it is breeding as it would occur in the wild. We may well object to an excess of captive breeding, as we would to the way in which some domestic animals are forced to breed, e.g. bitches on "puppy

farms". This is not to say that it may not be acceptable, or even highly desirable, most obviously on conservation grounds, to increase what would be the natural rate of breeding. But such a policy should be applied with some caution, and its success should certainly not be claimed as a definitive demonstration of the suitability of the conditions.

But, despite this qualification and the other problems with breeding that I have mentioned, breeding remains as a major criterion of good conditions in captivity, to be used alongside the other criteria.

9.3 NATURAL BEHAVIOUR

9.3.1 NATURAL BEHAVIOUR AS A CRITERION

I see an animal's natural behaviour as a criterion of its wellbeing, and perhaps the pre-eminent one. This is not to say that the occurrence of any particular behaviour patterns proves the animal's wellbeing, still less that the absence of any particular behaviour proves it is suffering or deprived. Rather, the occurrence of a behaviour pattern is an indicator of wellbeing and could be, as it were, awarded an appropriate score. The non-occurrence of a behaviour pattern should probably score zero rather than a negative figure. How much natural behaviour is needed for a judgement that the captive conditions are fully satisfactory? In theory, the animal's full behavioural repertoire; in practise, the more the better. No captive conditions are going to be perfect;

perhaps perfection is unattainable, being a theoretical state not even attained in the wild. Not all natural behaviour is necessarily desirable; whether a lack of opportunity to react as to a predator and to suffer the accompanying stress are drawbacks or advantages of captivity is debatable (19). But with the possible exception of this, all the animal's behavioural repertoire is highly desirable. One could usefully sum the marks awarded for different kinds or categories of behaviour (which I shall consider below). While a total score would be unattainable, a high mark could be looked for; a low score would be disturbing, certainly unless compensated for with very strong indications under other criteria of the animal's wellbeing.

There may be various reasons why particular behaviour is not shown, but one of them should not be that it is physically, or even psychologically, impossible for the animal to perform that behaviour in the conditions provided. Individual animals vary and are temperamental. Perhaps our "marking system" should give credit (say, one mark) for an animal's conditions allowing certain behaviour, and another mark for the animal's actually performing that behaviour. But of course the provision (of water, say, for swimming or branches for climbing) may be minimal, or good or excellent. So the marking system would require a good deal of detailed working out. But it would provide a useful aid to comparison between and assessment of different enclosures and captive arrangements.

9.3.2 THE IMPORTANCE OF NATURAL BEHAVIOUR

But why should display of its natural behaviour be a criterion of a captive animal's wellbeing or otherwise? (Natural behaviour is very desirable in a zoo because of the enormously increased interest thereby provided for human observers, but this is not the point here.)

There are I think several reasons, but the main one perhaps is that we are aware that humans have various natural needs and can hardly dispute that certain animals we know well have various natural needs also (20). Solitary confinement is a severe penalty for a human because all humans, in varying degrees, need some contact with their fellows; though of course this is a less vital need than that for food. Some natural needs are to express certain behaviour - feeding and social contact, for example. Dogs obviously have certain needs in common with us, including some behavioural needs, such as, indeed, eating and social contact with conspecifics.

Even such basic needs could be challenged. The need for food could be met by some technical substitute for feeding. Intensive pig systems allow certain farrowing sows almost no opportunity for locomotion. However although behavioural scientists may seek experimental demonstration before granting the truth of even such basics, few would want to challenge the comment of Julian Huxley, "that it is the frustration of activities natural to the animal which may well be the worst form of cruelty" (21). Suppose someone challenges the need to feed, while

of course granting the need for food: i.e. denies that, if the normal food obtaining method could be bypassed technologically (the animal fed intravenously, say) the lack of need or opportunity actually to ingest food in the normal way would be a deprivation. The process of feeding is normally pleasurable, to us, and presumably to (many) other animals, because, in both us and others, eating's being pleasurable serves the biological function of helping to ensure that eating occurs. But to eat, an animal has to find food, which in some cases involves searching for it, pursuing it and killing it. It seems inherently likely that such appetitive behaviour will also be pleasurable, or, if not itself pleasurable, will at least be directed by drives whose frustration will produce dissatisfaction, because it is easy to see how such devices for ensuring that food is sought for will have been selected (see 4.2 and 7.3). Similarly it is likely that the performance of other vital behaviour - social, reproductive and so on - selected for through milions of years will also be ensured by drives or pleasurable experiences.

To seek to judge an animal's wellbeing by its behaviour is a good approach for another reason. We can actually judge a fellow human's wellbeing more reliably by his behaviour than by what he tells us: he may lie or may deceive himself or may not wish to trouble us with an accurate account in what he tells us. But if we know his normal behaviour from the past, then we are likely to be

able to judge his wellbeing with a fair degree of accuracy; we will have good indications perhaps that he is now going through a period of depression, or that he seems to be as happy as he ever was. We are comparing his behaviour now with formerly. His behaviour tells us what we are seeking to know. Now much as people vary, their behaviour will be as it were circumscribed by behaviour common to all or the great majority of humans, natural human behaviour, in other words, such as it might be studied by an ethologist (22). But much basic human behaviour is so familiar to us that we do not need an ethological study to identify it for us. Thus when we judge some person's wellbeing by his behaviour, our basic terms of reference are going to be our (obviously intimate) knowledge of natural human behaviour. Thus we might be concerned because our subject seemed to be departing from the natural norm - in locking himself away for long hours, for example, for no understandable reason, and ceasing to communicate even with close members of his family, though we have of course to keep due regard for the variations in behaviour among individuals. Now similarly we can judge the wellbeing of an individual animal that we know well - our dog, say - by comparing his present behaviour with his normal behaviour. But of course we would be greatly aided, even in the case of an animal we knew well, by knowledge of that species' natural behaviour, and this would apply still more, if anything, in the case of a relatively wild animal in a zoo (though I

have stressed what seem to me the striking closeness of behaviour in wild and domestic animals). We can hardly avoid, I think, taking that species' wild behaviour as a norm, even though we must be aware too of variation in individual members of that species and of the fact that life in the wild can involve suffering (see discussion of point 3) in 9.3.3 following).

9.3.3 A DEFENCE OF NATURAL BEHAVIOUR AS A CRITERION

Dawkins, in her assessment of how we can judge whether (mainly) domesticated or at least artificially selected animals are suffering or not, disagrees with the view of natural behaviour as a most important criterion. She gives three reasons for doubting the validity of the wild as a standard:

1) Wild and domesticated animals are very different, and even different breeds of the same species of domesticated animal differ greatly (23).

2) It cannot be assumed that captive animals suffer through not performing, or being unable to perform, particular natural behaviour (24).

3) Suffering occurs in the wild (25).

None of these seem to me substantial objections to natural behaviour as a criterion, though I agree that the third poses real problems. I will discuss them in turn.

1) This, even if the case, would not be applicable to judging the wellbeing of animals in zoos, most of which are relatively wild. But Dawkins gives no convincing

evidence of large differences between wild and domestic animals, and some indications that there are not, e.g. an experiment in which Wood-Gush and Duncan released domestic hens on to a Scottish island, and lost all of them to mink very quickly, but then gave a second batch preliminary "commando-training" following which, apparently, the birds successfully selected "inaccessible and extremely well hidden nest sites" which they approached warily (26). Dawkins mentions Hughes' view that there seem to have been as many genetic changes in chickens in the last 100 years as in the preceding 4500 years, and that behavioural differences between "modern broiler strains and modern egg-laying strains are greater than those ... between a "primitive" breed such as brown leghorns and ancestral junglefowl" (27), She does not say what breed the birds receiving the commando training were, but they do not sound significantly different from ancestral jungle fowl if they could adjust so readily to dangerous wild living. Dawkins stresses that we need to find out whether there are genetic or environmental differences between wild and captive animals before using the wild as a standard for the welfare of captive animals, but the fact there are going to be inevitable differences seems far from a demonstration that the the differences are really significant, that they amount to fundamental differences in capacity for finding satisfaction, for instance.

2) To illustrate that captive animals are not necessarily suffering in not showing, or not having opportunity to

show, natural behaviour, Dawkins gives only one example, that of their lack of opportunity to show the kind of behaviour by which they would respond to the presence of a predator. But this is a) the one clear example of behaviour or experience which we would be inclined to feel a captive animal was well off without; and b) Dawkins herself gives some interesting evidence to suggest that even missing predators is not a clear advantage, because there is some evidence that animals will "seek out stimulation even when it puts them in danger": Kruuk's account of how, for example, some African mammmals will move so close to their predators they get killed by them, and Humphrey's example of monkeys choosing to see "horror films", i.e. voluntarily pressing a lever to see films or photographs which frighten them when seen the first time (28).

3) Dawkins mentions first of all Lack's figures about robins and other song-birds, which I think may well indicate some degree of suffering as well as mere shortness of lives (see 7.1, p 152) though, as I said (p 152), I think the situation is different with (for example) adult lions or chimpanzees (29). I have already mentioned another example Dawkins gives to illustrate suffering in the wild, that of animals eaten alive by hyaenas, but I think the comment of Kruuk that she quotes - "It is rare that the victim puts up any significant active defence" - does suggest the animal is likely to be in a stupor, like Livingstone's dreamy state when caught

by a lion, despite injuries he was aware of after his escape (30) (see 7.1, p 157). Still, I think the undoubted fact that a good deal of suffering does occur in wild living presents a real problem for the use of natural behaviour - which I regard first and foremost as behaviour such as would occur in the wild - as a criterion of wellbeing. After all, how can a suffering animal be, as it were, the standard for an animal in a state of wellbeing? I suggest, as a solution, that our standard should be the successful wild conspecific. For not only does the wild present high risks for most individuals; it may be particularly stressful for the less successful animal of any species, the one lower down the peck order, and that is bullied by its conspecifics, or that does not succeed in staking out a territory, or in securing a mate (31). It must of course succeed in finding food else it could not survive at all. We have to recognise that there are degrees of wellbeing in the wild, just as there are more and less optimal habitats. But the successful wild individual - the one who dominates, who wins a territory, who mates successfully, etc - seems to me the right standard. In as much as the captive animal shows similar behaviour to him, we have a strong indication of wellbeing.

Finally, Dawkins is concerned with how we tell whether an animal is suffering; I am concerned with a wider issue: how we tell whether it is positively well off, or in optimum conditions, not merely not suffering.

Even in the narrower issue, I think the wild as a criterion is far from being invalidated by Dawkins' criticisms; in the wider issue, it is still more likely to be useful.

9.3.4 RELEVANT KINDS OF NATURAL BEHAVIOUR:

I mean roughly by the "natural behaviour" of a specified animal (A) behaviour such as we have observed, or have good reason to expect that we could observe, being carried out by conspecifics of A in their natural habitat in a state of non-interference by man. I am thinking mainly of groups of related actions (such as the various actions involved in building a nest) which groups of actions I refer to sometimes as behaviour patterns. There will be an enormous variety of separate actions and even of activities, but we can still pick out, I would think uncontroversially, certain main categories of behaviour which are likely to be distinctive of a particular species, and which will in some cases be in some degree innate in all or many members of that species:

1) Characteristic forms of locomotion: walking, running, leaping, climbing, brachiating, swimming, gliding, flying, etc, and also burrowing.

2) Feeding, and more than this, appetitive behaviour: the preliminaries of looking for food, and catching it in the case of a predator.

3) Mutual grooming, and self-grooming, and any other maintenance activities.

4) Behaviour connected with the establishing of relationships with conspecifics (and in some cases possibly nonconspecifics), such as the establishing of territory and of dominance hierarchies or peck orders.

5) Breeding, i.e. courtship, nest-building, mating, young-rearing.

6) Play behaviour.

These categories are only intended to be approximate, and are not necessarily exclusive. I will comment on two, locomotion and, very briefly, play.

The first, locomotion, is rather different from the others, in all of which it is likely to play a part. Few would dispute the importance of its being at least physically possible for a captive animal to engage in its characteristic forms of locomotion, but flying, and to a lesser extent swimming and burrowing, tends to be treated as an exception. The problem with flying I shall examine in the section on birds in the next chapter. With all of these ways of getting about there is clearly a great difference between minimal and adequate provision: should not animals have space to run as well as walk? To swim, if they do swim, more than a few feet? To perform more than a token climb? Most kinds of animal can use two or more means of locomotion. Are they all essential requirements? Clearly one should, at least in principle, err on the side of over-provision, of giving the animal the benefit of the doubt. On the other hand evidence that, in the wild, an

animal never or hardly ever moved in a particular way, however much one might expect it to at a first glance, would make a difference. But to argue in such a way would be a very different matter from arguing that a pig or a fowl needed little opportunity to move around because its physical health was good. This is not a matter, one hopes, of any direct relevance to zoos, where the provisions for locomotion, even probably in the worst remaining menagerie-type cages, are better than that still regarded as acceptable in intensive husbandry systems. But animals are, in my opinion, much the same anywhere, and I think the same general principles for how they should be kept should apply to selectively bred as much as to relatively wild captive animals. I think that the natural behaviour criterion should be pre-eminent in that at least minimal requirements set by that criterion alone should not be able to be overruled by the application of any other criteria, including health. On the other hand it may well be that provisions which seem desirable on the natural behaviour criterion but which are well beyond the minimal requirements may be deemed inessential in the light of the application of other criteria.

Play is of particular interest because it does not need the necessities of living as a motivation. It is thus "tailor-made" for life in a zoo, and it would be both unsurprising and undisturbing to find that any animal played more in zoos than in the wild

9.3.5 ENCOURAGING NATURAL BEHAVIOUR

I have tried to show at some length why we should regard an animal's engaging in its natural behaviour as a strong indication of wellbeing, but what can we do to encourage an animal to do just this? Clearly, as I have just said, we must provide conditions which physically allow the locomotory behaviour typical of the animal. Sometimes we can keep certain kinds of animals in conditions which approximate very closely to their natural habitat. We may create or extend ponds or larger areas for wildfowl like the Emperor Frederick II or the Wildfowl Trust founded by Sir Peter Scott, or keep deer like the Pere David's at Woburn in a very large area with lakes and marshes (and where they live virtually naturally, facing, if not predators, certainly the elements with, for example, a high loss of any young born in particularly bad weather). Even exotic birds can sometimes be kept "free-flying", remaining presumably because of the availability of food (like conures and macaws at the Loroparque in Teneriffe), or they can indeed be attracted to an area, like wildfowl as above, or many other wild birds. There is, for example, a long-established colony of jackdaws at Glasgow Zoo, attracted by the availability of food and accommodation such as nestboxes. One can make a pond (such as one in a wildlife garden being constructed, again, at Glasgow) and in fact create what is to all intents and purposes a wholly natural habitat for aquatic insects like waterboatmen and pondskaters, and many of whose occupants

(such as diving beetles) will just arrive of their own accord.

Most animals cannot be "kept" in such virtually wild conditions, and indeed the cases just mentioned vary greatly in their degree of wildness. The pond invertebrates feed themselves: they may prey upon others, or be preyed upon themselves, as wild animals. The parrots are provided with food, though they have great freedom to fly. But many animals such as various ungulates, and wallabies, may require little more than a field suitably enclosed. Rodents such as prairie-dogs or porcupines may need only an enclosure of reasonable size allowing burrowing: the animals will create for themselves what else they need, and will no doubt be normally fully occupied by excavations and their social relations. Surprisingly perhaps, as we have seen, lions may also be suitably catered for with little more than a suitably furnished large enclosure: though missing the chance to hunt, they seem easily able to adapt to what is in fact only a somewhat extended version of their long leisure periods even in the wild (and the males usually rely on the females to do the hunting in any case). (I am taking it for granted that all these also have inside accommodation for night or retreat from the weather). With this kind of relatively straightforward animal keeping, we are going to observe a good deal of natural behaviour, and probably enough to give us (along with the application of the other criteria) reasonable indication of the animals'

wellbeing.

Even with animals quite easily catered for, there is always room for improvement in the light, especially, of knowledge of their wild behaviour. But such improvement, or "enrichment", becomes a much more urgent matter with the more "difficult" animals: the highly intelligent, exploratory, opportunist and sometimes also (to make it worse) physically powerful animals, such as bears, dogs, primates (especially the apes), and perhaps pigs. What is needed here is to exercise ingenuity in doing all possible to make their lives more interesting, in particular (I think) to do almost whatever can be done to elicit their natural behaviour. The most obvious deprivation of captive animals is the occupation of food seeking which, in many cases, would occupy them for long periods in the wild. So the remedy is to try hiding food, so that it has to be searched for, or even worked for in some way (and Markowitz has evidence of how many primates, for example, will, by choice, work for their food rather than merely receive it (32)). With these animals, it is not necessarily a matter of providing a more or less natural, or natural looking, area. For while little more may be needed for wallabies than a grassy enclosure, which will be near enough to their natural habitat, this may be far from enough, even with a tree or two or (more likely) a climbing frame or two, for chimpanzees. A wooded enclosure the size of the chimpanzee island at Arnhem (see chapter 14) will be a different matter. Where an area like

this is not available, it is still of course desirable for the enclosure to be as natural as possible or at least have natural elements such as a grassy area and plants (see 9.6.8 below), but it is still more important to provide what is going to stimulate the animals, which may be, for example, an artificial termite mound into which they can stick straws to extract not termites but honey. The significant thing about this example is that it is provided in the light of knowledge of what chimpanzees do in the wild.

Knowledge of the animal's wild behaviour is likely to be the best source of ideas for what can usefully be provided to enrich its captive environment. What seems to me a paradigm example of how successful this approach can be concerns domestic pigs. In this case pigs were studied in semi-wild conditions for many months and (very significantly, I think) much natural behaviour was observed, almost exactly typical of that of wild boar: even to the very details of what sort of place the animals chose to nest in, the sort of spot they would defaecate in, the way a sow behaved when she farrowed. A pen, obviously covering a tiny area by comparison with the hillside, was then designed so as to include the right features to elicit most of the behaviour which had been observed in the larger area - nestmaking, rooting, defaecating (in an imitation of a path between bushes, rather than a cul de sac), and so on. And this approach worked: most of the pigs' wild behavour still occurred in

the "enriched pig pen" (33). This seems to me at least in one very important respect exactly the right approach to adopt in a zoo with any "difficult" animals - i.e. those where it is very clear that merely putting them in a fairly natural-type area is insufficient for their wellbeing. Zoos will normally have much more space available than, for commercial reasons, would have been appropriate for the "pig pen": indeed ideally a zoo would provide an enclosure more like the semi-natural hillside where the first part of the pig study leading to the design of the pen occurred. But it is the wild study leading to the identification of the essential stimuli for eliciting different parts of the animals' behavioural repertoire, and then the careful providing either of those stimuli or of substitutes for them, that is the essential lesson zoos can learn from this example. Not, I hasten to add, that the lesson will be entirely new to them. This is the procedure they already very often adopt with regard to breeding. To achieve breeding for the first time is often a matter of altering the captive environment - perhaps keeping male and female normally apart (as in cheetahs), or adjusting the photoperiod, or providing certain nest materials - to make it accord more closely in some significant respect with the wild. What I suggest we can learn from examples of applied ethology like the design of the pig pen is how to extend the approach whose importance we already appreciate in regard to breeding - to extend it, indeed, still further with the vital matter of

breeding - but to extend it also into a general endeavour to provide the right key stimuli to elicit, especially, appetitive or seeking behaviour, and perhaps, in some cases, simply a wider range of locomotion. The stimuli may be identical to, or else suitable substitutes for, particular features of the wild.

The only misgiving I have with this approach is the question whether one might in some cases be eliciting the natural behaviour one wanted by a kind of super-normal stimulus (34). Obviously what one wants is to produce natural behaviour by (as near as we can get to them) natural methods - i.e. the provision of natural stimuli. I feel sure, however, that such searching for and providing of the right stimuli is the right approach. Application of the other criteria would serve as a safeguard against the possibility of what would seem the "cheating " approach of using a super-normal stimulus, just as it will similarly function as a check on the acceptability of different behavioural engineering techniques (see below) and training methods.

Sometimes a great improvement to animals' wellbeing can be provided as a result of a study of the animals' behaviour in their zoo enclosure, as in a study of the "daily lives" of a group of mandrills at San Diego which resulted in the provision of high shelves which the animals forthwith slept on at night, presumably because in the wild they would have slept high in trees in their West African forest, and had been trying to do something

similar unsuccesfully before the provision of the shelves (35). Markowitz has pioneered several more elaborate devices to elicit their natural behaviour from animals, such as flying meatballs for servals to leap to grab, or self-operated shower-baths for elephants, and trunk-operated switch boards giving a reward for the right combination, and arrangements by which polar bears or primates can perform some task and thus produce food (36). As mentioned above, he has found that many animals will voluntarily work for their food in preference to merely being given it, which seems eloquent evidence of the need of some animals for occupation and even creative activity. Markowitz himself is no doubt well aware of the criticisms some of his work has received, criticisms such as that it conditions animals to respond (perhaps in artificial ways) to artificial stimuli, and thus may be rendering animals ill-equipped for reintroduction to the wild, but he advises those who may find some of his suggestions distasteful (or simply impractical) because of their mechanical or unnatural nature to work to the same end in whatever ways they feel are more appropriate, the end being the provision of a rich, stimulating captive environment, and this surely is the important point (37). There is clearly great room for, on the one hand, learning from study of the animals' wild behaviour, and, on the other, exercising ingenuity in how to simulate, or, more usually, substitute for features of their wild environment in the captive one. So there may well be ways by such

methods of "behavioural engineering" of supplementing the more seemingly natural ways of enriching the captive environment of (especially) opportunists. The criterion of natural behaviour will still be important here in helping us to evaluate the desirability of any such devices, whether elaborate or very simple. That is, it will be in such methods' favour where it is clearly natural behaviour which is being elicited; we may still be uneasy if the device seems itself distinctly unnatural. Ideally we want natural behaviour elicited by natural stimuli, or something very closely related to natural stimuli. On the other hand, some behaviour not obviously natural at all may, when we judge by the other criteria (like health and direct indications), seem perfectly acceptable and desirable. An extreme example would be the driving of cars and the like which Hediger describes and admits to being himself far from enthusiastic about, but at the same time unable to deny the apparent great enthusiasm of the chimpanzees themselves for such occupations (38).

This last is an example (though a far from typical one) of a third, again very different, approach to keeping animals. So far I have mentioned two main ways (plus the almost entirely natural way, where possible, which I referred to first). This third is training animals to perform various tasks and generally treating them as domesticated animals, which certain typical zoo animals, as I noted in chapter 2, are - camels and llamas, and perhaps elephants, though the latter at the most only

partially. To have llamas pulling carts, and camels giving rides, and so on, where this is possible, seems, in view of their being domesticated animals, unobjectionable and likely to be therapeutic. It seems less appropriate with obviously wild animals such as the carnivores, though of course training here is often perfectly possible, not least with bears, though this is not an option normally considered in zoos, at least in Britain. But it hardly seems objectionable with falconry, no doubt because the behaviour of the falcon remains very obviously, to a great extent, natural to it. The case of dolphins is perhaps more difficult, but I think the fact they respond so readily to training, and thus obviously develop a close relationship with their trainer, makes it difficult to condemn out of hand; after all, had they happened to have been domesticated long ago, which biologically speaking would probably be perfectly possible, we might have taken their being trained for granted. At any rate, I just want to emphasise how the criterion of natural behaviour remains one way of judging a trained animal's wellbeing: we can judge the training itself partly by the extent to which the actions the animal is trained to perform seem related to its wild behaviour. What complicates it is that with a highly creative animal like a dolphin, however unnatural in a sense what it may do, with a ball, say, in another way it is natural because it is part of its nature to be exploratory, to amuse itself in new ways, just as, of course, humans do. The training situation is also

natural in another sense, in that it clearly could not exist were the dolphin's nature not such as to allow the animal to enter readily into a kind of communication, and certainly a relationship, with a human. This is of course a point I have already made with regard to dogs and elephants (see chapter 6).

9.4 ABNORMAL BEHAVIOUR

The occurrence in captive animals of abnormal behaviour, ranging from sterotyped pacing and weaving to self-mutilation, ingestion of vomit or faeces, manipulation of faeces, etc may well seem the clearest possible indication of the unsatisfactoriness of their captive conditions (39). There may seem nothing more to be said other than that, where such abnormal behaviour occurs, the conditions must be improved to at least a stage at which the objectionable behaviour ceases, and, if this is impossible or impractical, the animals concerned should simply not be kept, either at whatever zoo is under consideration, or possibly not at all by any zoo. It may seem obvious that abnormal behaviour is precisely what one expects of a human kept in poor prison conditions (a long-term prisoner in the Bastille, say), and thus of other animals kept in similarly dull, confined conditions, and thus again that the occurrence of such behaviour must constitute an absolute indictment of the captive conditions in which it occurs, an indictment from which

there is no appeal to, for example, the other criteria by which also we can assess an animal's wellbeing (40).

There is, indeed, no dispute both that abnormal behaviour such as is documented by Meyer-Holzapfel, Morris and others is regrettable, to say the least, and that it has been widespread in captive animals in the past, and is by no means unknown even in some good zoos today. It is likely to be uncommon today in zoos with large enclosures like Whipsnade and Marwell, and well-furnished enclosures like those of Jersey and Howletts, but it is well-known how prevalent pacing and weaving is among, for example, captive polar bears and sometimes elephants (41).

However there are several reasons why abnormal behaviour is not always an easy criterion to apply, why it is appropriate for a judgement on the grounds of an animal's abnormal behaviour to be qualified by the application of other criteria, and thus why an animal's showing abnormal behaviour should not be regarded as an absolute and final indictment of the unsatisfactoriness and indeed indefensibility of its captive conditions. The fact the criterion is not as straightforward as so often assumed does not make it less useful or important as a warning sign, even as a potential reason for condemning some particular captive conditions strongly, and certainly as an indicator of something wrong that needs to be remedied.

Once we attempt to define what we mean by abnormal behaviour, we should see why we cannot identify any

particular behaviour as abnormal by some infallible, mechanical process – our judgement must enter in, and may clearly be fallible. It may seem adequate to define abnormal behaviour as, say: "Behaviour such as conspecifics of the animal concerned would not perform in the wild state". But as we have for very few species anything approaching a complete account of their behavioural repertoire, we need to reword our definition as: "Behaviour which we have good reason to believe conspecifics of the animal concerned would not display in the wild state" (42). But animals in almost any captive conditions are going to show some behaviour which could hardly occur in the wild but which we are likely to regard as innocuous (e.g. drinking water from a bowl – or from a tap, as in the case of one of Gavin Maxwell's otters) and perhaps beneficial and desirable (e.g. reacting in an unconcerned, perhaps friendly, way to keepers or the public). So our definition now should be: "Behaviour which we have good reason to suppose does not occur in the wild and which we believe to reveal a disturbed state in the animal displaying it".

It is, as I say, going to be a matter of far from infallible judgement identifying any particular behaviour as (in our defined sense) abnormal. Take, for example, sterotyped behaviour. How do we decide that this indicates a disturbed state? Not simply because it is stereotyped. Stereotyped or ritualised behaviour plays a large part in many animals' courtship, for example, indeed in their

communication; in any case we are hardly going to regard a domestic dog as behaving abnormally because it ritually "buries" its food on the linoleum or ritually attempts (as it appears at first glance, and appeared to Descartes) to cover its droppings. We can agree that stereotypies we would expect to see under wild conditions are not abnormal. But neither are other stereotypies, necessarily, such as that of a polar bear that swims in a precisely regular way (in a particular part of her pool, one way on her front, then back on her back - I refer to a particular bear's habit at Glasgow). She does not seem thereby deranged, any more than this piece of behaviour seems disturbing. Humans, like other animals, can get into the habit of performing series of actions not only regularly but identically every time. Somebody swimming in his private swimming pool each day might do this (like the bear). Kant's neighbours are reputed to have set their watches by his afternoon walks with their clockwork regularity. On the other hand a polar bear's weaving is similar both to the behaviour of deprived children in institutions, and to that of young rhesus monkeys experimentally deprived of their mothers' support, and therefore reasonably regarded as a sign of a deprived situation (43). Take, as another example, the manipulation of faeces by great apes, even the throwing of them at visitors. The latter is presumably pleasurable (for the ape concerned), and its use hardly an indication of abnormality, if there is nothing else available; in any

case faeces could be the best material for getting a response from humans (cf 4.4, pp 88-89 above). Humans would use it for the same reason (44).

It may be difficult to identify a likely piece of behaviour as abnormal, or to assess how serious its abnormality is, because of the fact that it is not often easy to know the precise cause (which may involve several factors) of such behaviour. Sometimes the cause of, for example, a stereotypy is the conditions in which an animal was kept, or the way in which it was treated, in the past. Handrearing may be a cause, or the fact that an animal was, perhaps for a brief period after capture, kept in a confined area, or kept in more confined conditions in a circus. Habits earlier formed may prove ineradicable later, however great the improvement in conditions (45). In cases like this it is clearly as unjust as it is inaccurate to blame those now responsible for keeping the animal, or the conditions they provide, for the animal's abnormal behaviour. Sometimes there seems to be a hereditary factor; e.g. only one of the Glasgow polar bears shows substantial sterotypic behaviour. Another example is that of a stereotypy occurring in some black leopards and known as "stargazing". The tendency to engage in this appears to be inherited. In both these cases it seems therefore that the stereotyped behaviour is only partially caused by the captive conditions to which it is a response.

Abnormal behaviour such as sterotypies does not

itself indicate physical or even serious or continual mental suffering, or at least not necessarily. The behaviour may give satisfaction or comfort through the release of endorphins. While it is true that the environment ought to be so stimulating that the animal does not need to find satisfaction in this way, this is something (it seems) that a human could do. For example, endorphins are possibly released in long distance running. This does not mean that a long distance runner's environment is necessarily hopelessly impoverished, though certainly the cases are not exactly comparable in as much as the runner would be unlikely to be in captivity of any kind. But then, suppose he was - in prison, or in what some might find comparable, some schools or the army. To go in for running, and actually partly (let us suppose) because of the effect of the endorphins, could still be an acceptable way of gaining satisfaction. Again, it could be, with a stereotyped animal, that, when it was kept at an earlier time in poorer conditions, it acquired the habit of gaining satisfaction this way; now it can not be cured of the habit, even though conditions are improved.

As well as distinguishing between different kinds of what we would count as abnormal behaviour, and noting that all are not equally bad - obviously self-mutilation is worse than at least mild stereotyping - it is only fair to recognise that the degree of abnormality makes a difference. An animal may show a little or a great deal of pacing or weaving. Any is no doubt a warning sign, but

that is not to say that a little pacing occurring only occasionally (and this is something on the identification of which as abnormal, opinions in any case may well differ) is a reason for condemning wholly the conditions in which the animal concerned is kept (46).

It is not necessarily correct or justified to call an animal which shows stereotypic behaviour "psychotic" or "mad" (47). I imagine that schizophrenia is a common kind of psychotic condition in humans and can be so serious as to amount to insanity. What is most characteristic of such a psychotic condition would be the individual's failure to relate normally to other humans, and to take interest in other aspects of his environment, i.e. his retiring into himself. Neither of these would be true of a substantially stereotyped polar bear called Winston at Glasgow Zoo. He continues to relate normally to his two companion bears. Indeed quite a small change in his regime, like being given a large meal early in the day instead of later, can sometimes result in his not pacing or weaving at all during the day. I realise that schizophrenia is only one form of human psychosis or madness, and may not be typical, or comparable with nonhuman psychosis (if such a state has been veterinarily identified). But I still suggest that a fact David Jones comments on, from his twenty years experience as a veterinarian, that a stereotyped animal can still engage in normal social behaviour (i.e. have normal relations with his conspecifics), does seem a clear indication of such an

animal's not being psychotic (48). Even a self-plucking parrot can go on doing this in the company of other parrots (the original cause having probably been being in a small cage) and can be apparently all right otherwise. The feather plucking is obviously regrettable, distressing (at least to us), and a sign of something wrong, but it may be apparently impossible to cure and it would hardly be wrong to go on keeping the parrot despite its condition if this seemed the kindest thing to do and the parrot gave signs of being (otherwise) in a state of wellbeing (49). It would not seem necessarily accurate to call it psychotic.

In general, apart (perhaps) from when actually physically harmful, like self-mutilation, even abnormal stereotypies are probably adaptive, in that they help the animal to survive, to cope with its situation (perhaps through releasing endorphins, as above). The animal, of course, should not be put in a situation where it needs to behave abnormally in order to survive, to keep, perhaps we might say, its sanity. But at least that its abnormal behaviour may serve that very function seems a rather good reason for not calling the animal itself psychotic or mad. That the conditions, whether past or present, which caused the condition stand condemned (if we can only pinpoint them) is obvious enough.

I would add two reasons why I think it important to show, as I hope I have, that the occurrence of abnormal behaviour does not constitute an unanswerable indictment

of any particular captive conditions. One is that abnormal behaviour may be shown in what seem to be and may indeed be very good conditions, such as those of the polar bear enclosure at Tacoma Zoo praised by Cherfas but found fallible by Ormrod, in that he, to his own surprise and disappointment, observed stereotyped behaviour by one or more of the bears (on which point he is not specific) (50). It may be that one of the bears had acquired a stereotypy long before being in that enclosure, but in any case Ormrod's observations, though they do indeed cast a serious doubt over whether the enclosure is good enough - perhaps, as he feels himself, over whether polar bears should be kept by any zoo - do not constitute final proof of the correctness of that supposition. The other reason is that a zoo may find itself in a position where it accepts that its polar bear facilities are not good enough and therefore decides not to replace its present bears after their deaths. It still has the problem of what to do about the bears it has, and may well feel that the best thing to do is to continue keeping them as well as is possible, perhaps with certain improvements that can be made. Others may feel that, in such a situation, it would be better for the bears to be humanely killed (if, of course, they can not be sent to better accommodation elsewhere). Some of the considerations above should help to decide the best course in such a situation, and make it likely, I think, that a decision to keep the bears already there for their natural lives is the best course.

A point often made is that the exhibition of abnormally behaving animals is educationally undesirable, and even educationally useless or counter-productive. I should agree, at least with the weaker comment, but that is not my concern in this chapter, which is to examine how we may attempt to assess captive animals' wellbeing or otherwise (51).

9.5 DIRECT INDICATIONS

9.5.1 ANTHROPOMORPHISM

Barnett remarks that, while "the sight of a large mammal or bird behind bars is distressing", this feeling tells us "nothing of the needs or feelings of the animals themselves". He is right that we can be misled by attributing human feelings and wishes to other animals, and that "we must take account of other species as they actually are, not as we thoughtlessly suppose them to be", that we must, in other words, be careful to avoid anthropomorphism (52).

But anthropomorphism is a term easily misused, as Mary Midgley shows in the course of an excellent discussion of the subject. She reminds us how anthropomorphism is a concept that originally referred to the application of human attributes to God, and was by no means without problems even in that usage. Transplanted by 1858 to use in accounts of animals, it was being applied to such mild assumptions as that they could possess vision

or be alarmed (53). Of course we can make false assumptions about the mental abilities of other animals, though, as Barnett notes as well as Midgley, we can make similar mistakes about other humans also (54). But it seems to me that the exaggerated use of the term anthropomorphism is as unscientific as it is to be unaware of the need for caution in attributing feelings and intentions to other species. It may appear very scientific to be careful not to assume animals to be unduly like man, but it is easy to go to the other extreme and, in effect, set man on an airy pedestal as if he had no animal connections. Is Hediger right, for example, to assume that, when an eagle flies up into the heavens, it is only concerned with finding food below, and that only man can enjoy soaring for its own sake (55)? Perhaps enjoyment of such a thing requires man's undoubtedly greater imagination and capacity for abstract thought. But it seems to me more scientific to keep an open mind on such a matter rather than assume that man, in this as in so much else that we have evidence about, stands on a pedestal.

One reason for my challenging at this point the too ready use of the concept of anthropomorphism is to remove what may seem an obvious objection to my thesis in this section: simply that there are various direct indications that animals give in their actions and in their display of feelings – i.e. actions communicating their feelings directly to us – about their satisfaction or otherwise with their captive conditions.

9.5.2 ESCAPING

Barnett remarks that to us "a cage is a prison - something from which to escape" (56), but it is surely possible that it could be this for an animal too. An animal's apparently trying to escape - a leopard tearing at the bars or perhaps a lizard scrabbling at the glass - at least may be just what it seems. We may not always be justified in reading the intention of escaping into such actions, but I do think that an animal can have such an intention, as shown by the extreme case of a very small or otherwise very unsuitable cage: a large box, for instance. If we put a dog into this, he would scrabble around, frantically trying to get out. Would we really be any less justified then in describing his reactions in such a way than we would in describing similarly how a human would be likely to react to the same situation? Would it really be anthropomorphic, would it not indeed just be obvious, that the dog as much as the human was "trying to escape"? In other words, I think at least a very small cage would be a prison to an animal, just as to a human.

It is striking how readily we use the term "escape" of an animal, as readily as of a human. I think we are recognising how similar their situations are, and are indeed recognising that the situations are similar because humans and animals are similar: not only (as I mentioned in 9.3) do I think it is our own animal nature, our primate nature in particular, that is likely to make us

unhappy with being put in a restricted area without company, much freedom of movement, and so on; is it not perhaps our more specifically human nature - our ability to introspect, to think abstractly, etc - which can enable some humans to cope with this situation? As animals, we just want to get out, like any other primate, and like many other mammals (and birds). Thus I think that any animal's escape is a "criticism" of the captive conditions; it speaks for itself, at least to the extent of suggesting that the "escaper" is dissatisfied with conditions, or perhaps is aware of being confined. (I think the words of Brambell that I have quoted, p 62, would support this.)

Conversely, an animal who makes no effort to escape from a cage or enclosure is giving some indication of satisfaction with it. Of course, he might have given up in despair trying to get out; he might just be tired; he might be just getting used to it. But unless we have some indications of such being the case, the fact of clearly not trying to escape is worth something as an implication of wellbeing. I think it is true of certain animal enclosures at Glasgow (those for Axis deer and for camels, for instance) that the occupants probably could get out if they tried; we assume this will not occur unless they are badly stressed, which we do our best to avoid. There are examples of situations where animals are actually allowed out from any enclosure, so that they could at least physically escape if they wished. I say "physical" because

there may be mental or behavioural or other restrictions on their doing so. Monkeys at the Woolly Monkey Sanctuary are let out occasionally (except for mature males) into trees outside their enclosures but do not make a run for it; presumably this is some demonstration of satisfaction with life in the Sanctuary, though, having little or no experience of fending for themselves as under wild conditions, they could be afraid to venture into unknown territory. Just as likely, they simply have no need to go, having a known food source, good social relations in the Sanctuary, and no pressure from, say, a too concentrated population. This is clearly extremely different from the kind of menagerie set-up where the animals would, quite obviously, get away from their confined conditions (like humans in gaol) if they could. Peacocks (such as ours at Glasgow) are often kept unconfined; of course their behaviour as pheasant-type birds which mostly stay close to the ground and scratch a living from the soil makes them unlikely to go, as does their being territorial; if we did not know they were unlikely to depart, we could not keep them like this. Still, the fact remains they are staying through choice. And, as I said above, I think this would apply to some of the other animals also, even though they are kept in enclosures.

Many animals that do escape come back, as in certain examples that Barnett discusses. Where an escaped bear, say, returns he may be doing it because of fear at the unknown environment outside, like one bear alarmed by the

noise of the planks a workman he met dropped in fright before running for help (57); he might, that is, be choosing the lesser of two evils. Still, at least his enclosure is a place of retreat for him, a place of security in the face of the unknown, so such an occurrence too is worth something as evidence for his wellbeing there.

9.5.3 CHOICE TESTS

If we could arrange specific choice tests for animals, such as those arranged by Dawkins to test whether hens prefer batteries or not, we could get some specific information on animals' preferences in regard to enclosures and their furniture. It has been found, for example, that pigs prefer moderate lighting, neither very bright nor darkness (58). On the other hand, such a test might only be telling us which was the lesser of two evils. In some cases natural "choice tests" occur: certain animals arrive and lodge themselves with us by free choice. Zoos offer good food sources for many wild birds. Waterfowl can be attracted by the creation of suitable ponds (see 9.3.5).

9.5.4 DIRECT COMMUNICATION

Animals can give us other indications of how they feel about their relations with us. They can communicate their feelings directly to us, as when a cat purrs, lets itself be scratched or stroked by a human, or instead snarls; as

when a primate lip-smacks at us, even lets itself be groomed by us or grooms us in return (59). These are direct signs of happines, or at least pleasure, or of the opposite. I accept that these could signal short-term moods hardly reflecting the animal's long term wellbeing or otherwise. I still think they are worth something. If we had good reason to think the lions at London were really, as supposed by Young, roaring because they felt wrongfully imprisoned, this would be a direct indication too; but I do not think we have such reason (see p 22 above, note 2). I think even a bear begging, or otherwise communicating with a human, and an elephant having a joke (see 4.4 above, p 89) are indications in some degree of wellbeing: they would not occur if the animals did not in some degree accept their relationship with man. (It could be said they were accepting it because there was no alternative; but there would be one: they could remain untame, unrelaxed (60).)

We do not always understand what animals are communicating. A good example is the chimpanzee "grin", which in fact is a sign of unease rather than pleasure. We must be ready to be corrected by ethological study. But the fact remains that with species, like dogs and cats, with which we are familiar, we can interpret signs of pleasure, distrust and so on, very easily, as is a fact of everyday experience. And, as the attempt recorded by Hebb to ban the use of words describing animals' tendencies and feelings from laboratory use shows, we can and actually

need to interpret the signs that other primates make also (61).

9.5.5 INDIRECT COMMUNICATION

There are various actions animals perform, where they are not actually communicating or seeking to do so with us, which also reveal a good deal of their state of relaxation, or the opposite. Examples are a cat's washing itself, a dog's grooming itself (and a great many animals groom), and animals playing. This could be either play with us, or play which we observe. One example of play with humans would be that of Aspinall and some of his keepers with gorillas and with tigers (62). I have already mentioned play with elephants. It is I think of great interest both that play itself is an interspecific activity - something that certain other mammals, anyway, understand, as we do - and that play can involve the use of such interspecific signals as the primate play-face (see 4.4. above, pp 88-89). Animals' engaging in play among themselves - of course, a much more normal occurrence in zoos - is quite a strong indication, I think, of their wellbeing. Stevenson remarks that there is evidence of more time being spent on play in the wild in optimal than in suboptimal conditions, and that the occurrence of play in a zoo to a greater extent than in the wild, where this is the case, is an indication of good conditions (63). This puts play into a special category, for, judging its occurrence by the natural behaviour

criterion, we would regard it as a favourable indication that play should occur in captivity but hardly that it should occur to a greater extent than in the wild.

9.5.6 TAMING

All the favourable indications mentioned above in 9.5.4 and 9.5.5 occur only, I think, following an animal's becoming in some degree tame; their occurrence may be just what we mean by an animal's becoming tame. Tameness itself is an importance indication of an animal's wellbeing. Indeed, I think it unlikely that any vertebrate, at least, is going to be in a state of wellbeing in captivity until it has become in some degree tame. This is a matter emphasised by Hediger (64); obviously it is something distinct from natural behaviour, by which we mean precisely what an animal would do in the wild state, although at the same time I think it of importance that wild animals can sometimes become tame extremely quickly, or in some cases be tame already (see chapter 8). Becoming tame includes not fleeing from humans, becoming relaxed in their presence, probably becoming aware of friendly signals from humans, and also the giving of friendly signals to them. Of course, tameness or more than a certain degree of tameness may not be desirable in zoo animals; it is not an aid to them so far as reintroduction to the wild is concerned. But neither I think is it necessarily a disqualification, as demonstrated, it seems to me, by such remarkable cases as the lioness Elsa

becoming in various respects wild and yet remaining friendly towards the Adamsons, and the tigress similarly released by Arjan Singh (65).

9.5.7 TRAINING

That an animal can be trained, although this only happens with certain animals in zoos (see 9.3.5 above, p 228 ff), is also I think an important and very interesting phenomenon. It is widely appreciated how dogs presumably respond to being trained by us, and thus to accepting directions from us, to being submissive towards us, because of their wild nature as social, hierarchical animals who would be submissive towards a pack leader. The nature of what can be a very remarkable relationship has been recently explored by Hearne (66). It seems to me equally the case that humans are only capable of having the relationship they can have with dogs because they too are by nature hierarchical (see chapter 6, pp 138 and 144 ff).

I think that there are relationships between animals and keepers in zoos which can approach in some degree the dog–human relationship. Elephants, despite in virtually every case having been born in the wild, are usually managed as domesticated animals, and trained by keepers at least to lie down, lift up a foot (as would be necessary for veterinary examination) and so on. I mentioned in chapter 6 the significance of the mahouts with the elephants in the triumph at Rome (p 145). It is striking

how through history there have been comments on the need of elephants to be managed by the keepers they know (67). Elephant keepers find, I have gathered, that the keepers, where there is a group of elephants (and it might well be one keeper per elephant), are, as far as the elephants are concerned, regarded as in a dominance hierarchy, just as are the elephants (with, of five keepers and five elephants, hopefully the most dominant elephant coming sixth in the hierarchy). I do not suggest that animals cannot be trained by cruel means (see chapter 2, p 36); but I suspect such methods are to a great extent unnecessary because of the "natural" way in which a dominance hierarchy can develop between certain other animals and man.

There is a close relationship between training and taming, but I think the training relationship, in its own right, can be a useful indicator of an animal's wellbeing, or, perhaps more correctly, can be itself a respect in which the animal is in a state of wellbeing. I am saying that it is likely to find the relationship in some degree satisfying. I do not see why this should not be so in view of the clear satisfaction that a dog can get merely from being in the presence of and submissive to "his" human. There may be much else that is wrong. To take the one example I have been discussing, elephant accommodation may well in many cases be sub-standard in, for example, British zoos. But that does not alter the fact that in the training relationship there may be something that is

acceptable, even something rather admirable.

9.6 THEORETICAL ASSESSMENT

9.6.1 GENERAL

This criterion is concerned with any other considerations which may seem or be relevant to the assessing of the wellbeing or otherwise of captive animals. There are no specific observations involved here. We must simply consider the theoretical likelihood or otherwise of an animal's being in a state of wellbeing in captivity. In particular we need to view the animal in the light of its natural environment, and whatever behaviourally, ecologically and otherwise is known about it, and consider whether we would expect it to be all right in a particular set of conditions of captivity.

The matters discussed in 7.4 (Evolution and Adaptation) are particularly relevant: the fact that degrees of adaptability vary greatly, and that certain animals are going to have therefore much more specific requirements than others, and that some indeed may be unsuitable for keeping at all. That certain are (in some degree) specialists and others opportunists is very relevant (see above). So is the fact that certain animals are capable of having a special relationship with man and can be kept more or less as domesticated animals. It is in fact important with many animals that they should be looked after by the right kind of people, such whose

presence and whom contact with tends to induce relaxation in their charges (rather like the effect of sympathetic people on children) (68).

The "domesticated animal" approach is, as we have seen, one of three very different approaches to animal keeping: three approaches which we might call a) "semi-natural"; b) "enriched" (if necessary with methods of behavioural engineering); c) "domesticated animal" approach. These three categories are, at best, approximate. They blend into each other - for example, in that animals treated as domesticated, still need good enclosures and are likely to need contact with conspecifics as well as with humans; they should not be stabled, perhaps alone, for long periods. Again, perhaps the "enriched" approach should not be seen as an alternative, still less as preferable to the "semi-natural" approach, but rather as a supplement to it, likely to be necessary for the more exploratory animals except perhaps when they can be provided with an exceptionally large naturalistic enclosure. Perhaps "naturalistic" is a preferable term to "natural" for describing enclosures, in that no enclosure is going to be truly natural for several reasons, among them its size (69). But for the less demanding animals a naturalistic enclosure pure and simple is going to approach more closely to being, in practise, natural, i.e. providing virtually all the animal's needs as its wild environment would, whereas for the more demanding animals a

naturalistic one will still be far from being natural: i.e. it will provide relatively few of the animal's needs, and hence need enrichment. The enrichment itself may well consist in the making of an area more natural or naturalistic (e.g. by providing plants where previously there were merely sterile surfaces), behavioural engineering methods should no doubt themselves be as naturalistic as possible (e.g. the provision of a "honey tree" for bears) and are also "natural" in as much as they are designed to induce natural behaviour (70). The important thing is to recognise that there are substantially different approaches to animal keeping, suited in some degree to different kinds of animals, and any of which, or a blend of two or more, may be the most suitable for a particular animal's needs.

Perhaps all animal keeping tends towards one or other of two very widely differing approaches, the technological and the natural. The technological approach, precisely demonstrated in modern batteries, is not a new idea, to judge by an 1873 design for a "machine for feeding hens" in Paris illustrated in Hediger (71). Hediger himself is an emphatic exponent of the natural approach to keeping animals, strongly opposed to artificial insemination, for example, and he might be equally opposed to the use of behavioural engineering methods, though certainly not of training methods (72). There is a very important distinction between the kind of mechanised methods of keeping animals associated with

intensive farming and behavioural engineering methods. The intensive farming methods have probably been designed, initially at least, by technologists and engineers rather than by animal behaviourists, as Ruth Harrison emphasises (73), though such systems can be improved or at least ameliorated by changes made in the light of ethological study. These systems tend to ignore animals' behavioural needs, provided only that the animals actually survive and grow or produce eggs as required. Behavioural engineering approaches on the other hand are specifically designed in the light of study of animals' natural behaviour to try to elicit more of that behaviour in captive conditions, or at least to give animals an opportunity for varied or creative activity likely to enrich their lives. In many cases behavioural engineering approaches are superimposed on traditional and probably very inadequate methods of keeping animals, precisely to help to compensate for their deficiencies (74). The enriched pig pen (see 9.3 above) is different again in being, as it were, a complete system of animal keeping designed, certainly, to meet the economic requirements of pig farmers but also precisely to meet the behavioural needs of pigs, not to ignore their needs for economic ends. Whatever approach to keeping we use in a zoo, it should be to the same end, to provide the best conditions for the animal concerned in the light of our knowledge of its behavioural and other requirements.

The dichotomy of technological and natural approaches is to some extent reflected in a similar dichotomy in

approaches to feeding, which I will look at now very briefly, then moving on to the problems posed by those animals which we have to use in a zoo as food for other animals. I shall then look briefly at four other problems or aspects of captivity, those of sensory deprivation, aspects of being seen and being stared at, stress and the desirability of the natural, and then a challenge to my whole approach: "ultra-technological" techniques such as brain manipulation or drugging.

9.6.2 FEEDING AND FOOD ANIMALS

It is an important responsibility of a zoo to provide the right food for its animals, indeed the best food it can manage, just because the animals are likely to have, through our decision, not theirs, no opportunity to find food for themselves. Deciding on the best food is not without its problems, but must surely be a matter of balancing the demands of nutritional value (which may be best served by a synthetic product) against those of interest of food, of exercise for jaw muscles and roughage provided (e.g. for cats with whole dead animals to consume), and also such physiological needs as those of cattle, adapted as they are to digesting plant food over long periods with the aid of internal microorganisms rather than consuming apparently better quality more concentrated food (75).

There is an obvious clash between our responsibilities to carnivores like cats, who will benefit

from the provision of dead rabbits and chickens (say), and our responsibilities to those rabbits and chickens themselves. There are three particular problems: a) live feeding; b) killing; c) the quality of life of the food animals.

a) Live feeding.

This is in Britain legally not an option except for the feeding of, mainly, live rodents to snakes, and for the use in feeding of various live invertebrates, like locusts or mealworms. The feeding of live vertebrate prey to snakes must be a grey area legally, such feeding to any other animal clearly being an offence under the 1911 Cruelty to Animals Act. It is I think rare in any British zoo now, probably because of realisations of its moral questionableness strongly backed up by considerations of public relations, though no doubt regarded as acceptable by many private keepers of snakes.(Snakes take live prey far more readily than dead prey, which is why this particular problem arises with them.)

The practice seems to me morally objectionable, legal considerations apart, because, although rodents and birds would be of course taken by snakes in the wild, that is clearly not our responsibility, whereas what we do in a zoo is. That natural disasters cause many human deaths provides no moral (or legal) excuse for murders. There may be other reasons why we should regard live vertebrate feeding as objectionable, such as the fact the "prey" would be in a more confined space than in the wild,

perhaps that it would not be getting a "fair chance", and as a public spectacle there is an obvious danger of veering towards a mini-Colliseum. Probably little suffering in fact is caused by the live feeding of snakes: e.g. a mouse is probably unaware of the threat to it until virtally the moment of seizure by the snake (which I am assuming to be a constrictor like a boa or python), and death, although not instantaneous, does occur within a few seconds (unlike, obviously, the deaths of many mice caught by cats). Some would argue the virtues of recognising the reality of carnivores' nature and perhaps of the obvious enrichment of their lives from the provision of live prey (76). The law offers little protection to invertebrates. It may be necessary to use live invertebrates as food (e.g. for other invertebrates such as scorpions), or at least impracticable not to. This matters less than would similar use of vertebrates in that we have good reason to regard invertebrates as less aware, but if only in view of Morley's comments about ants, we should minimise any use of live invertebrates as food and still more of injured or incapacitated invertebrates (see 4.1, p 65, and Note 8, p 93). We should give them the benefit of the doubt with regard to suffering.

b) Killing.

This is regrettable but unavoidable if we are going to keep carnivores at all. As they have to have meat, there seems no additional moral problem in killing, for example, chickens or rats or rabbits in a zoo, when meat from cows

or horses is being used anyway - i.e. from animals killed elsewhere. Obviously, any killing must be as humane as possible, and such factors as animals' probable awareness of the deaths of other animals should be remembered.

c) Quality of Life.

The quality of life of animals to be used for food is as important as that of any other animals in the zoo. We should not be intensively rearing mice or chickens or any other animals, difficult though this may be for reasons of economy or practicality. We should do as much as we can to provide naturalistic and/or enriched environments for any food animals. In a zoo we should be setting an example with regard to all our animals, including those for food and any others "off exhibition".

9.6.3 SENSORY DEPRIVATION

Clearly captive animals are likely to be in some degree deprived of the great variety of sensory experience available in the wild. Can we assess this, and do anything about it? I think our best approach is by observing how wide or narrow is the range of natural behaviour. An active dog, clearly busy smelling different bits of his environment, is obviously not suffering sensory deprivation (though this is not to say he might not get still more sensory experience, and enjoy it, somewhere else). A veterinarian informed me how he could easily tell a dog which had had a long period in kennels, where, as he mentioned, the dog would be deprived sensorily: I presume

he would tell by the animal's listlessness and lack of interest in his surroundings. So I think our problem of ensuring a satisfactory range of sensory experience in zoo conditions may be much the same as the problem of inducing a wide range of natural behaviour. It is the need for enclosure enrichment, for the right stimuli to be provided to elicit natural behaviour. At least, if this is achieved substantially, the animal will be deprived sensorily to a much lesser degree than otherwise. With more exploratory, perhaps more intelligent animals like primates and bears, there is a particularly strong need for change and variation in the enclosure. The provision of television for apes, as for example at Twycross, seems rather a sad solution, but perhaps what is good enough for humans is good enough for apes. Obviously such extra sources of experience, even such passive experience, should be investigated.

9.6.4 BEING SEEN AND BEING STARED AT

These problems are distinct, though similar. The problem about being seen is a basic one in zoos. With many animals, the better the captive environment provided, the less the public are going to see the animal. Small mammals, for example, do not sit around being seen in natural conditions. They hide away. This can apply even more to, for example, snakes. An ideal snake enclosure - from the point of view of the snake - would probably be the opposite from the human point of view. The whole human

point is to be able to see the snake. The snake, by choice, would, except when hunting or perhaps basking, probably stay in a burrow so as to be in darkness and so as to be in as much tactile contact as possible with something solid, which snakes seem to like. Enclosures for smaller mammals which have been designed very much like mini-habitats - as at Palacerigg Country Park or the Highland Wildlife Park - can be quite difficult to spot the occupants in. One answer here is education. Spotting the animal in a really good enclosure is going to be a little like spotting an animal in its actual natural habitat which is (in some respects) better educationally and more interesting. I think also the essential unfortunate paradox which faces us here - the better the enclosure, for the animal, the less you tend to see of it - is compensated for by an important aspect of enrichment in which animal and human interests coincide: this is simply that the more you can stimulate the animal to behave naturally - e.g. hide a Fennec fox's food so that he searches and digs for it - the more interesting his captive life is for him and the more interesting it is for the public to watch him. The approach of having several "actors" - e.g. to all appearances a continually active weasel, in fact a succession of different weasels emerging in turn from "behind the scenes" - would be another possible solution, but seems rather, and perhaps rather unfortunately, stage-managed (77).

The problem with staring is simply that this again is

an essential aspect of zoos, whose main point is that we have animals in front of us that we can look at as long as we like, but that staring with many species, including of course ourselves, constitutes a threat (78). This probably applies mainly to primates. It is a reason for having large enclosures to which the public can not get very near, but which they have to observe in the sort of way they would have to observe the animals in their natural habitat. I think, for example, of the outside chimpanzee enclosure at Edinburgh, where I do not imagine the animals would be aware of being stared at. It may be that primates get used to being stared at, and I do not know of any studies on whether they are ill-affected. But it seems something that ought to be borne in mind, investigated if possible and guarded against if necessary. The use of one way glass could be considered. In effect some zoos are guarding against it with regard to some of their animals, especially those they are most concentrating on breeding, by keeping some of them in breeding areas, perhaps separate parks, closed to the public. But does that imply that we are likely to be subjecting those watched by the public to a known source of stress?

9.6.5 STRESS

Obviously animals should not be suffering stress caused by their captive conditions as such. We ought to be keeping them basically stress-free. On the other hand an absence of stress is not natural, as already discussed in

7.2.4 (p 164 ff) and 9.1 (p 200). Some stress is going to arise from relations between conspecifics in social animals kept in proper social groups. This is presumably desirable, provided there is not an excess of stress, say from an animal's being unable to get away from a dominant conspecific, as it would in the wild. Refuges, screened areas, etc are important for, e.g., primates, for hiding away from dominant conspecifics. In view of the evidence that some animals will voluntarily seek out stressful situations (see 9.3.3, p 216), an ideal arrangement would seem to provide some device by which animals such as primates, anyway, can subject themselves to mild stress if they choose.

9.6.6 NEED FOR NATURAL ITEMS AND SURROUNDINGS

We humans often get particular satisfaction from being among trees and other plants, perhaps partly because, like other primates, that is where we would find much of our food: it would be evolutionarily useful to be programmed to get satisfaction from being in the kind of places which are likely food sources. If there is anything in this, it would apply to other primates too. In any case, the fact that we enjoy contact with plants etc suggests that other primates may, and perhaps other animals. Domestic dogs visiting the country presumably don't admire the view but no doubt often get richer supplies of smells than in the city. I think it is significant that prisons are associated for us with concrete and bricks, as well of

course as bars. To be imprisoned with access to a garden would for most humans be, probably, a considerable amelioration of their situation. It might be assumed that it is humans' mental capacities that lead to their enjoyment of nature, and that this doesn't apply to other animals other than of course when natural things are an actual food source (as for herbivores). But I think this is probably not so. Of course, sometimes natural objects - e.g. actual branches - may be more interesting in several ways than artificial substitutes. They may have more varied shapes, bark that can be pulled off with the likelihood of small invertebrates underneath, etc. All this is already strong reason to provide real branches, etc rather than artificial substitutes. But grass underfoot or other vegetation, real trees, etc may be attractive to animals in the kind of ways they are to us too (79). I think Ormrod is right to emphasise the desirability of real plants etc in enclosures, and right to draw attention to unfortunate pseudo-provision of such real vegetation when it appears to be in the enclosure but actually merely surrounds it, or is even protected from animal contact by electric wires (80). There is of course a great difficulty in the provision of real trees and even other plants in enclosures in some cases: that they last only a short time because of damage from the animals. And this of course is because of the small area of those enclosures. But making enclosures as natural as possible is a very real way in which they can be made less

prison-like of course as far as human onlookers are concerned, but perhaps genuinely much less prison-like as far as the animals' own experiences are concerned.

9.6.7 ULTRA-TECHNOLOGICAL APPROACH

One solution to the problem of animals' lying around doing nothing would be to adopt the kind of technological approach used by Delgado, who once stopped a charging bull in its tracks at the flick of a switch (wired up to its hypothalamus) (81). Apart from the human interest thus provided, such technology could have another use, that of making life unfailingly pleasurable for zoo occupants. We could substitute for the interest of their wild state the opportunity to stimulate their own pleasure centres, like Olds' rats (82). The simplest objection to this course would be a conservational one: that a breed of compulsive lever-pushers would hardly be suitable for reintroduction to the wild, nor would unfortunate animals whose natural behaviour was produced involuntarily by a human technician operating like a puppet master. Both these would also, I think, unless at the very least carried out for a very serious scientific purpose and of course as humanely as possible, be an unjustified invasion of the animals' right to autonomy.

Both the conservational objection and a simple respect for the animal as animal would also rule out any policy of fitting animals to zoo conditions by drugging them. Luckily this is hardly an option for zoos, who have

problems enough encouraging activity without damping down their animals' consciousness level like unfortunate poultry in darkened batteries (83).

NOTES TO CHAPTER 9

1. M.S. Dawkins, Animal Suffering (London: Chapman and Hall, 1980).
2. P. Singer, Animal Liberation (London: Granda, 1977), e.g. pp 108, 111-12.
3. J. Rachels, The End of Life, Euthanasia and Morality (Oxford: OUP, 1986).
4. As, e.g., at Edinburgh until comparatively recently.
5. E.H. Tong, "The Requirements of Ungulates and Carnivores in Safari Parks", UFAW Symposium, The Welfare and Management of Wild Animals in Captivity (Potters Bar: UFAW, 1973), pp 50-55, espec. p 53.
6. Dawkins, op. cit., pp 55-68.
7. I.J.H. Duncan, Zoological Colloquium, Zoology Department, Glasgow University, 9 March 1987.
8. H. Hediger, Wild Animals in Captivity (New York: Dover, 1964), p 37.
9. Though there must be some adaptation, necessarily; see H. Spurway, "Can wild animals be kept in captivity?" in M.L. Johnson and M. Abercrombie (eds), New Biology (London: Penguin, 1952), pp 11-30.
10. E.g., a comment of an experienced cat keeper: jaguar mothers who are disturbed early (by over-inquisitive keepers) and kill their young are doing it because they feel, "Why bother? No chance of bringing them up safely." This suggests that, when jaguars (say) breed successfully in captivity, they at least feel fairly secure.
Another example of an animal's need to feel secure is that a cheetah can be put off from breeding if leopards are near.
11. Singer, op. cit., e.g. p 123 ff; I remember visiting pig and poultry intensive husbandry units with a group of graduate biologists, all of whom were shocked, I think, by the confined conditions.
12. Spurway, op. cit.
13. C.H. Keeling, Where the Lion Trod, A Study of Forgotten Zoological Gardens (Guildford: Clam, 1984; available from C.H. Keeling, Pound Place, Shalford, Guildford, Surrey), p 3; cf J.R. Bareham, General Behaviour Patterns of Wild Animals in Captivity", UFAW Symposium, op. cit., pp 90-93, espec. p 93.
14. Hediger, op. cit., pp 37 and 38.
15. L. Williams, Man and Monkey (London: Panther, 1969), p 21 ff.
16. G. Parker, Europe in Crisis 1598-1648 (London: Collins/Fontana, 1977); cf the work of J.B. Calhoun on

overcrowding in rats: e.g. account in J. Bleibtreu, The Parable of the Beast (London: Gollancz, 1968), p 204 ff.
17. T. Firbank, I Bought a Mountain (London: Landsborough/Four Square, 1959), p 200.
18. The Times, Science report, 6 Aug 1986.
19. Dawkins, op. cit., pp 48-54.
20. M. Midgley, Heart and Mind, The Varieties of Moral Experience (London: Methuen, 1983), p 155.
21. Quoted by Ruth Harrison, "Ethical Questions Concerning Modern Livestock Farming" in D. Paterson and R.D. Ryder (eds), Animals' Rights - a Symposium (Fontwell: Centaur, 1979), p 125.
22. E.g. N.G. Blurton Jones, "An Ethological Study of Some Aspects of Social Behaviour of Children in Nursery School" in D. Morris (ed), Primate Ethology (London: Weidenfeld and Nicolson, 1967), pp 347-368.
23. Dawkins, op. cit., pp 41-48.
24. Ibid, pp 51-54.
25. Ibid, pp 51-54.
26. Ibid, p 45.
27. Ibid, p 44.
28. Ibid, p 49.
29. Ibid, p 52; as I think Lack suggests in the comment of his that Dawkins quotes: "We ourselves would be shocked if half our friends died each year...".
30. Ibid, p 52; David Livingstone, Missionary Travels, (London: Ward, Lock, 1910; first pub. 1857), p 11; see also W.J. Jordan, "Altruism and Aggression in Animals" in Paterson and Ryder, op. cit., pp 150-151.
31. R. Fiennes, Man, Nature and Disease (London: New English/Signet, 1965), pp 174-175.
32. H. Markowitz, Behavioral Enrichment in the Zoo (New York: Van Nostrand Reinhold, 1982), p 7.
33. Wood-Gush, op. cit. (p 24 above), pp 196-198; Huntingford, op. cit. (p 24 above).
34. R.A. Hinde, Animal Behaviour, A Synthesis of Ethology and Comparative Psychology (New York: McGraw-Hill, 1970), p 68; S.R.L. Clark, The Nature of the Beast (Oxford: OUP, 1982, p 94 ff.
35. Campbell, op. cit. (p 41 above), p 63-64.
36. Markowitz, op. cit., pp 175-179 (servals); pp 46-55 (polar bears); pp 86-93 (elephants).
37. Cherfas, op. cit., p 128 ff; Campbell, op. cit. (p 41 above), p 213.
38. H. Hediger, The Psychology and Behaviour of Animals in Zoos and Circuses (New York: Dover, 1968), pp 136-137.
39. Hediger, op. cit. (Note 8 above), pp 75-77; D. Morris, "The response of animals to a restricted environment" in his Patterns of Reproductive Behaviour (London: Panther, 1972; first pub. Symp.Zool.Soc.Lond. 13, pp 99-118), pp 603-630; M. Meyer-Holzapfel, "Abnormal behaviour in Zoo Animals" in M.W. Fox (ed), Abnormal Behaviour in Animals (Philadelphia: W.B. Saunders, 1968), p 476 ff; M.F. Stevenson, "The Captive Environment:

its Effect on Exploratory and Related Behavioural Responses in Wild Animals" in J. Archer and L. Birke, Exploration in Animals and Humans (Wokingham: Van Nostrand Reinhold, 1983), pp 176-197, espec. pp 184-188.

40. Both Mary Midgley (letter to The Independent, 26 August 1987) and S.A. Ormrod ("Standards for modern captive animal management", in T.E. Gibson (ed), The Welfare of Animals in Captivity, BVA Animal Welfare Foundation Fourth Symposium, 13 May 1987, pp 22-27) make the assumption that there is no appeal from abnormal behaviour to other criteria such as health and natural behaviour; D.M. Jones ("Welfare in the wild and in captivity: how do they compare?", ibid) assumes that there is such an appeal.

41. E.g. Jordan and Ormrod, op. cit., p 158 ff; P. Horsman, Captive Polar Bears in the U.K. and Ireland (Coldharbour, Surrey: Zoo Check, 1986).

42. Stevenson, op. cit., p 179.

43. See, for experimental work on young Rhesus monkeys, Rowell, op. cit. (p 184, Note 41 above).

44. Morris, op. cit., p 609.

We can hardly expect nonhumans to have quite the same abhorrence at handling faeces; this could be anthropomorphic. In any case, humans could no doubt get used to it. Not that non-humans, in many cases, normally would handle it, no doubt for evolutionary-hygienic reasons.

45. Stevenson, op. cit., pp 184-187.

One example is of polar bears caught near Winnipeg, because of wandering into town repeatedly. Stereotypies then acquired during short period of close confinement may continue, however spacious and interesting later captive conditions are.

46. Stevenson, op. cit., pp 184-186.

47. Ormrod, op. cit., p 24 (use of "psychotic" of stereotyped bears); Midgley, op. cit. (use of "mad" of stereotyped polar bears and elephants).

48. Jones, op. cit.

49. Stevenson, op. cit., p 186; it may well be said the owner should not have had the parrot in the first place, perhaps that parrots should never have been kept. But this, whether or not a useful or correct opinion, is not the point I am here concerned with.

50. Cherfas, op. cit. (p 21 above), pp 139-140; Ormrod, op. cit., pp 24-25.

51. Bareham, op. cit., p 90; I do not however think that Mary Midgley is justified in comparing the display of, as she calls them, "mad" polar bears and elephants to the public display of lunatics at Bedlam (op. cit.). The lunatics were displayed because their crazy behaviour made them of interest; this is patently not the case with stereotyped polar bears and elephants, even accepting (as I do not, and have tried to show why) that such animals may justifiably be called "mad". This is not to deny that any such stereotyped behaviour is cause for great

concern, and may amount to an overwhelming reason why these animals should not be kept in zoos.

52. S.A. Barnett, "Instinct" and "Intelligence", The Behaviour of Animals and Men (Harmondsworth: Penguin, 1970), p 25; Dawkins, op. cit., p 88: how, on investigation, hens turned out to prefer "fine-guage hexagonal wire" cage floors, not a heavier mesh as assumed by the Brambell Committee.

53. M. Midgley, Animals and Why They Matter (Harmondsworth: Penguin, 1983), pp 125-128 and p 129; see also M. Midgley, Beast and Man (Hassocks: Harvester, 1979), pp 344-351.

54. Barnett, op. cit., pp 25-26; Midgley, op. cit., p 130.

55. Hediger, op. cit. (Note 8 above), pp 51-52; but see also H. Hediger, Man and Animal in the Zoo (London: Routledge and Kegan Paul, 1974), p 100 ff.

56. Barnett, op. cit., p 25.

57. P. Street, Animals in Captivity (London: Faber, 1965), pp 219-220; a Himalayan bear used to escape regularly at Whipsnade, and was equally regularly recaptured with some aid from condensed milk kept for the purpose (op. cit, pp 221-222).

58. Dawkins, op. cit., p 88 ff.

59. As a baboon called Emma used to do at Glasgow with her bearded keeper.

60. Cf Elspeth Huxley's comment on dolphin training (Whipsnade, Captive Breeding for Survival (London: Collins, 1981), p 22); K. Burgess, "The behaviour and training of a Killer whale at San Diego Sea World", Int Zoo Yb 8, 1968, pp 202-205, espec. p 204: "certain... behaviour patterns [during training] interpreted as signs of irritation and... respected as such".

61. D.O. Hebb, "Emotion in Man and Animal: An Analysis of the Intuitive Processes of Recognition", Psychological Review 53, 1946, p 88 ff.

62. Aspinall, op. cit. (p 194 above, note 11).

63. Stevenson, op. cit., p 181.

64. Hediger, op. cit. (p 194 above, note 13).

65. Adamson, op. cit. (p 194, note 11 above); A. Singh, Tiger! Tiger! (London: Cape, 1984), e.g. pp 98-99.

66. V. Hearne, Adam's Task (London: Heinemann, 1987).

67. E.g. K. Thomas, op. cit. (p 42 above), p 277: "'There is an elephant given to the King,' notes an early Tudor schoolmaster, 'but none can guide him but they that came with the present'".

68. W.C. Miller and G.P. West, Black's Veterinary Dictionary (London: Black, 1972), p 893, entry "Stress".

69. Markowitz, op. cit., p 9 ff.

70. Stevenson, op. cit., p 191; Markowitz, op. cit., p 2 ff; Cherfas, op. cit., p 131 (honey tree at Copenhagen); M. Hutchins et al, "Naturalistic Solutions to the Behavioral Problems of Captive Animals", Zool. Garten N.F., Jena 54, 1/2, 1984, pp 28-42.

71. Hediger, Man and Animal in the Zoo (London:

Routledge and Kegan Paul), pp 35, 65.
72. For Hediger on training, see p 44 above, Note 58; for emphasis on zoos being natural, see Hediger, op. cit. (Note 71), pp 64-65 and p 66 ff.
73. Harrison, op. cit.
74. Markowitz op. cit., e.g. pp 1, 17.
75. See Note 36, p 134 above; see also Bleibtreu, op. cit., p 201, for unexpected connections of zoo feeding, medicine and behaviour.
76. Markowitz, op. cit., pp 13-14.
77. S. Dowe, "Environmental enrichment for captive primates and foxes", paper given at Society for Veterinary Ethology meeting, Royal Veterinary College, London, 3 Dec 1986
78. M. Midgley, Beast and Man (Hassocks: Harvester, 1979), p 11 ff.
79. Not of course that mown grass is exactly natural; what the public like to see, so it has been suggested to me, is not actually natural enclosures, but Capability Brown-type semi-natural enclosures.
80. Ormrod, op. cit., pp 23, 25-26.
81. Lausch, op. cit. (pp 95-96 above, Note 46), p 94.
82. Olds, op. cit. (pp 95-96 above, Note 46).
83. W.B. Gross, "Chicken-Environment Interactions", paper given at Conference on "The Moral Foundations of Public Policy: Ethics and Animals", Donaldson Brown Center for Continuing Education, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, 24-27 May 1979: "It was found that at reduced levels of light intensity chickens failed to recognise social and population stresses. Removal of these social and disease stresses released resources which could then be used for increased growth. Another benefit of reduced light levels is reduced feather picking so that debeaking is no longer needed."

Chapter 10

THE CRITERIA APPLIED

I am not attempting to give final answers to all the questions, but rather to show the questions can be tackled, and answers found. I am really suggesting guidelines, which others may be able to follow better, with more details, more experience to draw on. They may be able to bring in other relevant factors. What is important is that the questions should be asked, and looked at along these lines, and that working or provisional answers be reached, and acted upon, however difficult for various reasons (not least the power of tradition) this may be.

A low score on a criterion means, as I see it, a case to answer. It may be outweighed by a high score on other criteria. But there needs to be a good reason for deciding that keeping a particular species is acceptable despite a low score on a criterion, still more so if there are low scores on two or three of them.

10.1 CATS

Because they can breed well, and also because as animals at the top of food chains (and other reasons like human pressure) they can easily be threatened in the wild, there is a strong conservation case for keeping cats. The problem with the BREEDING, as a demonstration of

wellbeing in captivity, our concern in this chapter, is (as we saw in the last) that some cats will breed almost anywhere, as typified by a line mentioning lion cubs ("lionets") in a 19th century Hood poem describing Exeter Change (see chapter 2, pp 32-33) (1). This does not apply to all cats - cheetahs were only bred first in recent decades at Whipsnade, and Clouded leopards are not straightforward to breed. In any case, when cats do breed, and this must be true I imagine also of lions and tigers, one contributory factor is the relationship with the keeper. This suggests that even in such menageries as the Change there was probably often a good, personal relationship with the actual keeper, however confined the space. So on breeding I think we can give "cats" in general a high score. (By "cats" I mean of course "cat keeping"; I shall in this chapter refer to other animal keeping similarly, for brevity.)

The same applies to HEALTH. They can be in very good physical condition in a zoo given careful feeding, which will include not only a varied diet but one geared to their limited exercise so that they do not become overweight. The question of exercise brings up the quite difficult criterion for cats of NATURAL BEHAVIOUR. Obviously they are going to lack opportunity for hunting and killing (except when a serval, say, occasionally catches a bird, for example, an event not unknown at Jersey at least). Equally obviously it would be a fuller life for the cats if they were not deprived of this (see

4.2 and 7.3), even though hunting must sometimes be a desperate business (as e.g. with a cheetah perhaps failing several times before making a successful gazelle kill). The provision of live vertebrate prey for cats or other predators I do not regard as an option (see 9.6.2, p 255 ff), but an artificial substitute like an electric hare, or flying meatballs for servals, would be highly desirable. In view of domestic cats' readiness often to chase almost anything it seems surprising we do not make more effort to give our cats something to chase. But I think very relevant here is the observation that cats do in fact relax a great deal of the time in the wild - I am generalising here, probably rashly, but there is no question that this is so of lions, as I said in 9.3, and in some degree of other cats - and only hunt occasionally. That their enforced abstention from hunting in captivity is not a severe deprivation seems borne out by the readiness of cats in zoos to sleep and generally relax. The loss of the opportunity and motivation for appetitive behaviour does not seem a great deprivation for them (2). I am here following Morris' theoretical distinction (already mentioned) between opportunists (animals like dogs and primates) and specialists (like cats) which, as he puts it, have nervous systems attuned to long periods of inactivity in the wild state, so that the adjustment to captivity is readily made (3). This consideration of Morris's would, so far as my scheme is concerned, come under THEORETICAL APPRAISAL.

So cats (in as much as one can generalise about thirty-five different species) do well on breeding and health, and on theoretical appraisal, but not so well on natural behaviour. In practise I think there is a good deal of other natural behaviour they will show, such as maintenance activities like grooming, and territorial behaviour like scent marking and scratching, and various social behaviour. (It seems to me desirable for a pair to be together as far as possible, even though one could argue that most cats, being mainly solitary, are in more natural conditions when kept singly much of the time.) All this depends on their being provided with as rich and interesting a captive environment as possible, and the continual providing of such enrichment is I think of crucial importance. To a great extent the interest of the enclosure will be more important than its area, though to me observation of a domestic cat's tendency to explore beyond its immediate home area, even though it presumably has no need to do so for hunting, indicates how cats need the largest, as well as the most enriched, area we can manage to provide. I would think that the provision of a varied diet, and one including, for example, regular whole dead animals which have to be cut up and worked at before being swallowed is also an important way in which their environment can be enriched and their jaws (for example) exercised. I have mentioned exercise little, and cats seem to remain healthy without much; but I would think that any behavioural engineering device such as I

mentioned above would be highly desirable as a stimulus towards exercise.

There is a real problem here, significant for more animals than cats alone: the point that without the need to seek or catch their own food they lack the motivation which in the wild would result in their having exercise, though exercise as a "spin-off" from the serious business of living, not of course taken for its own sake. We can point to many captive animals' health, and to other indicators, as I am doing, to show how great their wellbeing in captivity seems to be; but still, efforts to seek other ways of stimulating animals to search for food, or work to obtain it, both for interest and for the exercise thereby obtained, should be a continuous, indeed never-ending, part of keepers' work.

On UNNATURAL BEHAVIOUR, cat-keeping can do badly, in the occurrence of pacing for example, but I do not think this is widespread today, and in any case is likely to be diminished by all those kinds of ways in which we can seek to stimulate natural behaviour. A cat relaxing, clearly accepting the near-presence of people without any distress, even indeed as an apparent source of positive interest, is I suggest giving us DIRECT INDICATIONS of wellbeing in captivity. (Humans not being normal food even for tigers, much less for other cats, it is unlikely, I think, that frustration at so many unobtainable meals walking past is a frequent occurrence.)

I think cat-keeping's overall score can well be high,

and reflect the true situation. Of course there is danger of complacency; I am not in the slightest seeking to defend any and every case of zoo cat-keeping. But I think it can be assessed, and that in many cases it will be found to be quite successful, and that where it is not, remedies worth trying are available.

10.2 POLAR BEARS

Polar bears have been long kept (e.g. Henry I's "white bear" at the Tower), if not as long or widely as brown and black bears, but their captivity has been recently sharply criticised, even a petition presented to ask for their non-keeping (4). So far as their physical HEALTH is concerned, this (as with elephants) can be good with responsible keepers who ensure, for example, a careful diet (5). On the other hand, that most captive polar bears are in poor mental health has been strongly claimed; perhaps a similar judgement could be made on their general health, if defined widely (see 7.2.5, p 165).

Polar bears' BREEDING in captivity is poor (despite its enormous potential in public relations) (6). Some zoos that have bred polar bears regularly have used hand-rearing. Whether it is a matter of cubs not surviving at all, or their surviving only when hand-reared, there is no indication here of polar bears' wellbeing in captivity.

Clearly polar bears do not show, or are not usually given enough opportunity to show, much of their NATURAL BEHAVIOUR in captivity. They are large, powerful animals,

and they are opportunists, roaming over vast areas of the arctic. Zoos' first concern is to provide an enclosure they cannot get out of, and perhaps one that they cannot do endless damage to the contents of. Their second responsibility (second only to the requirements of human safety), to provide an interesting environment for the bears themselves, has tended to be neglected - perhaps understandably, however inexcusably. Tacoma Zoo in America has a naturalistic polar bear enclosure (see 9.4, p 238, and p 266, Note 50). Polar bear enclosures should probably be far larger and could well contain facilities for climbing as well as water. Trees, logs, etc if possible are probably quite suitable, although not associated with polar bears, because the latter are closely related to brown bears and appear to have adapted to arctic regions fairly recently. But bears, being intelligent and exploratory, are going to need extra stimulus: the area itself, even if large and "interesting", is not going to be enough. What they need is the provision of extra interesting items - to eat, or to manipulate and play with, whether in water or on land - and these ought to be changed virtually every day. It may well be that more elaborate techniques, such as those described by Markowitz, are desirable, or at least worth trying, although open to certain objections. Training, as suggested by Bareham, also seems a possibility (7).

In view of the fact that we regard it as a criticism of polar bear keeping that the bears have too little

opportunity for natural behaviour, and perhaps as a consequence may be suspected of being incapable of various natural behaviour - e.g. catching their own prey - if they had the opportunity, I am puzzled why it should be regarded as an indictment of polar bear keeping that, if a person enters their enclosure, he is killed by the bears. Of course this is tragic, as in a recent case in New York when a child who entered a polar bear enclosure pool at night, in the course of trespassing in the zoo, was killed and eaten (8). But how is it itself any reflection on the conditions in which the bears are kept, and even less on the normality of the bears themselves? It may well be a reflection on the safety of the enclosure (though bears are hardly more dangerous than cars for those who rashly confront them). It seems like a demonstration of how normal the bears are, despite being captive.

Now not altogether divorced from the matter of natural behaviour is that of ABNORMAL BEHAVIOUR. I have already stated that I do not think the occurrence of weaving, etc necessarily provides a final indictment of the keeping of polar bears, not least because, though stereotyping can seem impossible to cure, its occurrence can also sometimes be affected very easily (see 9.4, p 234 ff). At Glasgow, no sterotypies are seen in the evening, in the absence of the public. Bears are usually solitary in the wild, and it may be that stress caused by the presence of other bears is a causative factor in stereotyping. In any case, their normal solitariness is a

good reason for trying keeping them on their own, though still with as many stimulating devices as possible. It may be that a zoo keeping three bears should have them in three separate, large enclosures. This would also make more variety for the bears feasible, with moves between enclosures. In any case, an extra enclosure is desirable, e.g. when three bears are kept as at present at Glasgow, to facilitate the moving of the bears from one enclosure for cleaning purposes (they are intelligent animals and can be reluctant to move into their house if they know they are going to be shut in for any length of time). This in turn would make it more practicable to provide more manipulable items, even just straw and bones, in their outside enclosure (i.e. if they could easily be removed by the keepers). So there are many practical considerations which could make it possible to keep the bears satisfactorily. Obviously money as well as a theoretical understanding of the problems is a limiting factor, and itself could help to make a decision not to keep the bears a right one. But even then, if the bears have to be kept for their natural lives, the problem of how to keep them in the best way still remains.

Despite all the problems with bears, there are numerous DIRECT INDICATIONS of the way in which a close relationship with man can be built up. They can be trained, and one of Hagenbeck's colleagues apparently once successfully trained a team of twenty-one polar bears in nine weeks to haul a sledge (9). Despite being solitary in

the wild, they are close relatives of dogs and perhaps temperamentally as capable of being close companions of man, only unfortunately they usually become too dangerous when adult, and in any case are of course dangerous because of being so powerful.

Even though polar bears are solitary, large carnivores ranging far in the wild, it seems (as a THEORETICAL ASSESSMENT) far from proved, in view of their being, like other bears, very ready to be trained, very ready to take an interest in all sorts of items which they would not come across in the wild, that they cannot be kept satisfactorily in captivity, only that hardly any zoo, Tacoma being at least a partial exception, has yet succeeded in doing so. Unless a zoo is prepared and able (e.g. financially) to go to the necessary lengths to provide a stimulating enough captive environment for polar bears, it ought to phase out their keeping. But it seems clear that it may be feasible for certain zoos to continue at least experimenting, especially as many bears are already in captivity and still have to be kept.

10.3 PRIMATES

The keeping of primates, apes especially, is probably more strongly criticised than the keeping of any other species, as for example by Williams, supported (mildly) by Schomberg, and by Schaller (10), as well as Midgley (11). A letter to The Times in 1980 about the need to breed

gorillas in captivity drew a reply about the inappropiateness of zoo ape accommodation: "...metal grilles, bricks, concrete, steel, railing and iron bars. Some future there for a denizen of the rain forest" (12). It is true that we can get the "prison feeling" most with captive primates, partly because of their being so obviously our nearest relatives and our quite rightly feeling (in my opinion) that they, even more than other intelligent mammals, have a right to autonomy, and partly because of the practical considerations which unfortunately so often lead to primate accommodation's being "prison-like". Primates large and small need much more than a simple enclosure to keep them in; large ones are very strong; all are clever, exploratory and manipulative. So there is an understandable tendency, indeed often a clear need, to provide indestructible or at least long-lasting equipment (climbing frames, etc) of, say, metal rather than natural branches. In addition, primates pose a hygiene and health problem usually solved by dull, sterile surfaces (see 7.2, p 160), and are prone to infection. To complete the problem, primates are the animals most zoos feel they could spare least because of their attraction for the public. I shall try to show not only how the criteria can assist us in judging primates', as any other species', wellbeing, but also that at least some primates can be kept satisfactorily and are so kept in certain zoos.

It is clear that primates' HEALTH in captivity has

always posed problems. London Zoo's first ape was a chimpanzee called Tommy who survived there (in 1835) for six months; the first gibbon, in 1839, soon died of tuberculosis (13). We should remember they were at risk specifically because of their proneness to catch human diseases (e.g. respiratory ones particularly) and remember the extent to which humans were at risk also. That such animals survived only briefly does not necessarily mean they were not (like humans) sometimes victims of human irresponsibility or inefficiency, but certainly sometimes there was enormous concern and as much done as could be (14). There have been enormous advances in the health care of primates. Their physical health is unquestionably important; on the other hand it should not be regarded as a final criterion of their captive wellbeing, because of the possibility of overprotectiveness (see 9.1, p 199 above); for example, glass protecting them from respiratory infection from humans can make life dull or restrict valuable human contact even with their own keepers (15). The sacrificing of the requirements of mental health to the requirements of physical health should not happen if due consideration is given to the other criteria, notably that of natural behaviour. Not that the latter should have complete precedence either. Safari parks have sometimes kept chimpanzees on islands, so allowing opportunity for much natural behaviour, without providing heated winter accommodation, such as is obviously necessary, on simple grounds of health and

comfort, for delicate tropical animals kept in a temperate climate.

For many years apes were kept without any captive BREEDING, perhaps because no-one was trying to breed them, partly because of the ease of replacing such animals from the wild, an of course notorious process (16). Today, it seems to me that there is a significant correlation between the level of breeding and captive conditions creditable on other grounds. The most successful primate breeding occurs in Britain at such places as Howletts, Jersey, Twycross, and the Woolly Monkey Sanctuary. Some other zoos have good breeding records too. Bristol, for example, breeds gorillas very successfully in more traditional accommodation - the sort which some critics would call "prison-like" - but no other zoo approaches Howletts' gorilla breeding. So, at least with primates, and especially if we count not just the occurrence of births but birth plus successful mother rearing, I think breeding is likely to be, at least with primates, a useful criterion of wellbeing.

So far as NATURAL BEHAVIOUR is concerned, primates are likely to need as large an area as can be made available, partly because they ought to be in a natural grouping which in many cases would number many animals, and partly because of being nomadic and exploratory (17). But more important, beyond a certain minimum of space, is the interest of the area, which means, first, enclosure "furniture". Obviously they need things to climb or swing

from, whether these are bars or ropes or actual branches or better still trees (see 9.6.6, p 261 ff). Apart from the considerations I mentioned in 9.6.6, it is important that captive primates (like other animals) have as much experience as possible of the "real" objects, or things as similar as possible to those objects, that they would need to be used to, and know about, in the wild - simply so as to be as ready as possible for reintroduction. Obviously this especially applies with any animals where there is a real likelihood of their reintroduction, and yet apparently and extraordinarily it can be forgotten, as in a recent attempted release of a large group of Golden Lion marmosets.

The importance of natural materials, and of grass and other plants including trees, if posssible, does not mean that the most important thing is a reconstruction of the wild habitat in all its details (see 7.4, pp 180-181 above). What is important is to provide the essential features of the wild habitat. Examples would be bedding for apes, making nest-building important, which Badham stresses as absolutely essential, suitable objects to climb on, swing from, etc, and facilities allowing for proper social groupings, which means at the least considerable space, but also areas for retreat (18). Two excellent examples of primate captive environments which do not "look" natural are the extended network of linked enclosures, some outside and grassed, some inside and heated, at the Woolly Monkey Sanctuary, and the gorilla

enclosure at Howletts, rather like a great gymnasium floored with straw and equipped with chutes, ropes, etc. The amount of natural behaviour, such as that involved in social relationships - the behaviour of the dominant silverbacked male at Howletts, for example - and the level of successful breeding, demonstrate the degree to which the animals have what they need (19). So I think that an explicitly artificial construction designed in the light of the maximum knowledge available of the animal's wild habitat, its behavioural repertoire in that habitat, and also its behaviour in captivity, is sometimes likely to be the animal's best captive bargain: to be what will induce it to perform the maximum amount of its behavioural patterns, and probably satisfy as many as possible of its sensory needs. As I have said, natural objects or material should certainly form a part of it. If in addition the captive environment can actually look like the real thing, this of course is in itself highly desirable for educational and aesthetic reasons, provided that the animals' real needs are being satisfied, and that their real requirements are not taking second place to mere fine appearances. The two may coincide, and it may be, for example, that Aspinall constructed his enclosure as he did because funds were lacking (as usually in Britain) for a naturalistic display on the lines of the best American examples. If so, the fact remains that he has gone for the most important thing, meeting the animals' actual needs, as far as they can be established, rather than neglecting

these in favour of apparent realism. This is not to say that, where a large area is available, a more naturalistic enclosure may not be highly suitable and successful, as illustrated by the island chimpanzee enclosure at Arnhem Zoo in Holland (see chapter 14 below) (20).

There are clearly a whole range of approaches for meeting behavioural needs. Markowitz's methods are one way; there are others, perhaps just hiding food so that animals can spend a long, interesting time seeking it, or just a wide, and changing, selection of materials for gorillas, orangs and chimpanzees especially, but many monkey species also, e.g. macaques or capuchins, to occupy themselves with (21). If these can be natural materials, or natural-looking materials, or materials that otherwise look suitable, and do not look vulgar, degrading or untidy, so much the better. But these three considerations are of very minor importance compared to the animals' welfare. Otherwise ideal materials can be unsuitable because of health risks (the danger of being swallowed, say, or because they contain nails), but to avoid giving primates suitable objects to occupy them on mere grounds of tidiness is like starving a young child of enjoyable and educational experience (like painting, say) because such activity make a mess. I stress this point because I believe it can be a real, and most unfortunate, consideration in the management of primates.

I have been considering how natural behaviour among captive primates can be stimulated. There is unfortunately

plenty of ABNORMAL BEHAVIOUR recorded which indicates the consequences of the lack of a stimulating enough environment, most seriously when a primate is kept solitarily. It seems legitimate, and not anthropomorphic, to compare a primate kept solitarily - still worse one kept out of sight of, and without other contact with, conspecifics - with solitary confinement for a human (see 9.3.1, p 211, and 9.5.2, pp 241-242). Little further comment is needed here on such abnormal behaviour as faeces-throwing (see 9.4, p 233). That chimpanzees should be reduced to manipulating faeces because they have nothing else is obviously appalling, but the use of this by choice to hurl at visitors seems a vivid demonstration of their intelligence and their interest in humans' reactions, as well of course as their need for occupation. It is closely related to chimpanzees' love, it would seem, of performing, described in happier circumstances by Morris. While it is abnormal behaviour in the sense that we ought not to be putting the animals in a situation where they are forced to do this, it is clearly not abnormal behaviour showing a state of derangement on their part (22). It is much better if chimpanzees, for example, can be kept in an enclosure which is not only significantly enriched, but also large enough to contain a substantial group of animals who will be more interested in each other than the humans watching them, and which is also far enough away from the public for people not to obtrude on, to be virtually ignored by, the chimpanzes

(see 9.6.4, pp 259-260).

Primates can give many DIRECT INDICATIONS of wellbeing or the opposite. Positive indications would include greeting signals to humans such as lip-smacking, and playing (see 9.5.5, pp 246-247). A close and fruitful relationship is indeed possible, as illustrated by Leonard Woolf's account of a tame marmoset kept as a pet, though primates are indeed highly unsuitable in general as pets because such a relationship is unlikely to be able to be continued into adulthood and likely, except with the great apes, to destroy any possibility of their integration into a normal primate group (23). Negative indications of wellbeing would include, I think, signs of boredom (such as various items of abnormal behaviour), and attempts to escape, as already discussed in 9.5.2, p 241 ff.

THEORETICAL APPRAISAL includes considering primates' wild lives and attempting to judge whether it is likely to be possible to keep them satisfactorily in captivity. For some primates, such as chimpanzees, we now have available detailed studies of their wild behaviour, which bring home to us the challenge we face; perhaps, we may well feel, our arrogance in assuming that it is possible to keep animals whose mental capacities, the structure even of whose lives, seem so closely to rival ours (24). However Goodall, with all her appreciation of the rich lives of wild chimpanzees and herself critical of the ways such animals are often kept in zoos - as well she might be, just as Schaller is - also notes how her work should

provide information about "the conditions which a chimpanzee, in captivity, must enjoy if it is to show normal behaviour". She is far from denying, it seems to me, the at least theoretical possibility of keeping them satisfactorily, given proper appreciation of their needs (dietary as well as behavioural) (25). If the possibility is granted for chimpanzees, then it should be granted for any other primate.

The problem of staring's being a threat in many primates (at least) and certainly the great apes should not be ignored (see 9.6.4, pp 259-260). As I have said, I think the answer is for an enclosure to be placed some way back from the public, perhaps behind a moat. Obviously, something is lost, the privilege or opportunity to see such animals close to, and to have various direct contact with them. Perhaps there is nothing wrong with such contact provided the animal is not being forced to engage in it; in other words, if it is close to the public by choice, but can retreat far away or, more important, out of sight if it wishes to. The animals must also be able to retreat out of sight of each other, and they must be looked after by people they are in sympathy with (which applies, probably, to all higher animals, not just primates (26)). The providing of the right conditions for primates is clearly so demanding that there is a great deal to be said for a zoo's keeping only a very few species.

I am attempting to justify the keeping of primates in

captivity in zoos (in a wide sense of "zoo") on the grounds that, with due attention to their behavioural needs, as learnt first and foremost from their wild lives, as well as with attention to other matters such as their physical health, they can be kept in conditions of wellbeing, conditions such that to all intents and purposes they will not be substantially worse off than in the wild. It seems sometimes almost to be assumed that laboratory primates have different requirements, kept as they may be "usually singly or in pairs in cages designed so that the animals can be safely handled by the operator", perhaps with a "perch" as this is likely to be "more comfortable to sit on than the wire mesh floor", and where the term "suitable environment" seems to refer only to air conditioning, humidity and temperature (27). I do not dispute there may well be great care and efficiency here, and great concern over physical health, but in no way, it seems, are animals kept as here described in natural social groups; in no way have they opportunities to express even a fair portion of their behavioural repertoire.

Experimental work itself, in as much as it is at all injurious, still more if it is painful, to primates (particularly, but of course other animals also) can be justified only, if at all, as a necessary evil, something we must deeply regret but which necessity - our concern for our own survival and our children's - forces upon us; as necessity forces us, for example, to kill rats, even by

painful means if there is just no other way; as it forces us, indeed, on occasion even to drop bombs on other innocent human beings. It seems to me that such conditions as those described above must be justified also, if at all, in the same way. It must be realised that keeping primates in pairs or solitarily in cages is an evil, no doubt a lesser evil than would be the case in the absence of the specialist care and attention that they receive, but still an evil, and therefore, at the very least, requiring to be phased out or replaced as soon as possible by a way of keeping which pays attention to all their needs.

It is creditable to emphasise how reluctant we should be to take any primates into "conditions of existence far removed from those they have previously enjoyed in the wild" (28). I think that deprived conditions are indeed worse for an animal that has known better (as applies to a human also); but that is not to say that the animal that has not known better does not have an equal right to conditions which satisfy its real needs, just because those needs are nearly as great for it, though born into captivity, as for the wild caught animal. This point has an important application to a difficult moral problem: that of how to justify captive breeding of primates not as a direct aid to conservation, but as an indirect aid because one is thereby satisfying a need for primates to be used by laboratories without using wild-caught ones (29).

10.4 ELEPHANTS

Elephants as zoo animals present a rather interesting and difficult case, much discussed, and I think rather over-simplified by some of the critics. I am trying here, as with other species, to do three things:

a) assess conditions in better and worse zoos (and show how the criteria help us to do this);

b) consider theoretically how best they could be kept;

c) in the light of both a) and b), consider whether they should be kept.

On HEALTH I will only say that captive elephants can be in, at least, good physical condition, and that the fact they receive veterinary treatment is a clear advantage of their captive state. I will qualify this by accepting that the lengths of life of some recent captive elephants are not impressive, though they do not compare badly with lengths of life of wild elephants, only with that potential which we can reasonably expect captive animals to approach (30).

The BREEDING level of captive elephants is extremely low, but this is because of special difficulties with elephants, mainly that mature males are dangerous when in must and most zoos therefore refrain from keeping them. It might be said that this is inevitable in view of the deficiencies of much elephant accommodation, which requires keepers always to manage their charges as domesticated animals (31). Apart from conservational aspects, which are not my concern here, this lack of

breeding is obviously a deprivation for zoo elephants of a major part of their NATURAL BEHAVIOUR and lifestyle especially because, in the wild, a calf would remain with its mother for a long period and no doubt they would enjoy a mutually rich relationship. It is obvious that elephants should have social relations with other elephants, obvious because this would today be accepted with any other social animal that we keep in zoos. This is not to say that an elephant group in a zoo should contain a male: elephants are matriarchal, with bull elephants separated most of the time. The elephants in a herd are probably related, so that putting together two unrelated females is not strictly natural and therefore perhaps understandably not always effective (32). How much deprivation does a single elephant on her own experience? This will depend a great deal on her relationship with her keeper (on which see further below), but he can hardly spend enough time with her to compensate fully for the lack of contact with other elephants. How much of a hardship is it for an elephant to be chained? Chaining would not now be regarded as acceptable with any other animal in a zoo, so it must seem particularly objectionable with an, if anything, exceptionally intelligent one like an elephant, unless it is merely a short tethering process (say for a few minutes) for some purpose such as washing or veterinary attention. Elephants often are tethered for longer periods, e.g. at night, and this is a matter of necessity, for safety, where, say, doors are not adequate. But

obviously they should be made adequate, whatever the cost, or other practical solutions found - or else elephants not kept.

Presumably a zoo keeping elephants should have a large enclosure or enclosures adequate for a small group, with as enriched outside areas as possible, and with inside areas which should be enriched too, but which especially need to contain stalls large enough and strong enough to obviate chaining (33). I am advocating here a natural way of keeping elephants as far as possible - i.e. in a group in a large area - but enriched artificially because there is no way in which we can expect animals which are intelligent and exploratory, but which also in the wild would spend perhaps twenty hours a day feeding, to occupy themselves without our providing extra devices for manipulation and investigation (and also as large a pool as we can manage). Even where conditions do not approach what I have outlined, I would add that quite a lot of natural behaviour can be observed, such as dust-squirting, playing of various kinds, and feeding in different ways.

Much criticism has been directed in recent years at London over the death and (so it is asserted) prior deprived life of an elephant called Pole-Pole (see chapter 1, Note 24, p 24). It looks as if this was one elephant London should have admitted to having problems with long before, and that, as Cherfas puts it, "both would [have been been] better off without one another". In the end she

was put down with an injection of the drug etorphine when, following examination under anaesthetic for a limp, in the course of unsuccessful attempts to move her to Whipsnade, she refused to get up again. The architect-designed and highly expensive elephant and rhinoceros pavilion at London, which indeed seems to provide little in the way of the animals' real biological needs, I shall discuss briefly in chapter 12 (34). London's own policy with regard to elephants, I understand, is now to train them so that they can actively mix with the public, and thus avoid what was one of the problems with Pole-Pole, that she was untrained in the fashion of the anti-disciplinary sixties, and in the end proved, sadly, unmanageable. This seems very likely a wise policy to adopt (see below), not least in view of elephants' millenia-long involvement with man and London's own 150 year experience in managing them as domesticated animals.

I have little to add under ABNORMAL BEHAVIOUR to what I have said in the last chapter. Clearly weaving, for example, should be taken as an indication of something wrong, presumably of a deprived environment. Stabled horses also sometimes weave, and this too is highly regrettable because of the boredom or frustration it is indicating, but, just as its occurrence in horses is not usually regarded as necessitating the entire severing of man's relationship with horses, weaving in elephants may still be regarded as something whose underlying cause must be set right, without that cause having to be identified

as simply the keeping of elephants in the first place.

As I have also already mentioned, elephants give us numerous DIRECT INDICATIONS of the special quality of their relationship with man. They can certainly communicate with us, even, I think, joke with us on occasion, certainly play with us, and probably find considerable satisfaction or at least acceptable occupation in working for us (see 4.4.2, p 89). The importance of a continuous relationship with one keeper I have already mentioned, and how in a sense it seems to me a "natural" relationship (see chapter 6, p 145, and 9.5.7, pp 248-249). Thus it seems to me that to treat an elephant as a domesticated, indeed, as far as possible, a companion animal, is one acceptable way of keeping her. On the other hand, it is still desirable that she have contact with other elephants, as would be the case in Burma, say, partly because she will no doubt get certain satisfactions from this that human contact cannot replace, and partly because the human contact will in practice be limited (though the less it has to be, the better) (35).

My THEORETICAL APPRAISAL, then, is that different approaches are possible. One is to go for a naturalistic system as far as this is possible - i.e. a large area with a small herd - but in practise enrichment will be necessary, and if this is or seems artificial, this is much less important than that an elephant should be meaningfully occupied. The other is to treat elephants as domesticated animals, with more than the minimum training

which is going to be essential in any system. One problem is whether such an arrangement can continue throughout the elephant's life. It has been suggested to me that beyond, say, the age of early adulthood an elephant cannot be "handled" without a degree of domination (i.e. of striking the animal) which today would be unacceptable.

The circus approach, in which a calf is removed from its mother at an early age, and trained in an elaborate way, is an extension of the domestic animal approach. What makes such an approach right or wrong morally is, I think, whether such a relationship with man (which will probably be with one person in particular) can be continued throughout the elephant's life, or whether there are going to be long periods of solitary, or at least confined, stabling, and whether there is going to come a period of retirement when all the earlier contact and occupation cease. Clearly both these are unfortunate fates for an intelligent, sensitive animal, and should not be regarded as acceptable.

It may well be that certain zoos should cease to keep elephants, and there should be more cooperation between those that do keep them, particularly in arrangements for breeding, but it does not seem necessary to phase out the keeping of elephants entirely.

10.5 UNGULATES

In general, ungulates can be kept satisfactorily, requiring most obviously to be in normal social groups in

large enclosures, so that much of their NATURAL BEHAVIOUR can occur. In some cases this has its own drawbacks, as in an account of a male white rhinoceros kept eight years with one female without breeding, then moved to a relatively natural situation where he asserted his dominance over other males, gathered together a harem of seven, lived successfully, siring eighteen young, only to be finally defeated after four years by a newly mature male, and thus left alone again (36). What is striking here is that in no way had the animal lost his natural social behaviour, despite being in a situation for a time where it could not express itself fully. I think it is worth giving two other striking examples of the extent to which natural behaviour can be retained, for all three, quite apart from their conservational importance, are impressive evidence of how animals are not seriously affected by captivity. First, an example of behaviour one would not normally either wish or expect to see in a zoo. This was an incident in which a fox pursued by hounds took refuge in a paddock occupied by Przewalski's horses (i.e. wild Mongolian horses) at Marwell, and the stallion at once took what was obviously "wild-horse-wolf-repelling" action against the surprised foxhounds (and afterwards prevented his mares from venturing into, or far into, the paddock) (37). The other is the behaviour of a herd of Pere David's Deer, bred at various British zoos, in the process of being reintroduced into their former wild habitat in China. Within a week of release into a large

area, one stag has asserted his dominance, gathered 80% of the females into his harem; the deer are finding food satisfactorily, including, unexpectedly, one particular plant recorded in "Chinese records" as being eaten by this deer; young fawns are hiding away in thick undergrowth; and so on. Quite clearly, to a considerable degree at least, their behaviour is natural; they, as it were, "know what to do", despite having been born in captivity (38).

Of course I am not saying that all captive ungulates show a complete or even a large spectrum of their natural behaviour. What I am saying is that we may reasonably expect to see a fair degree of their natural behaviour and that by this very factor we can judge to a great degree how far they are in a state of wellbeing in captivity. Some ungulates will have special requirements. Pigs are probably an example of an opportunistic ungulate - i.e one that will take several different kinds of food, including meat or carrion when available, in different ways. However they do have a primary way of feeding, by digging with their snouts, and this particular need must be met. I have already refered to the enriched pig pen of Edinburgh University School of Agriculture, a blueprint for an artificial way of keeping pigs which yet, being designed in the light of a study of their behaviour in semi-wild conditions, appears to meet all their main needs (see 9.3.5, p 224 ff).

Obviously HEALTH and BREEDING are important criteria here too. Health can present particular problems with

ungulates, the need for hard standing for example, to ensure proper wear of hooves in the absence of the degree of wear they would get in wild conditions (see 9.1, pp 199-200). But this will depend on the amount of land provided (and available) and on the particular species concerned.

ABNORMAL BEHAVIOUR is a warning sign here as with other species. It is also very important that the right people should be in charge of ungulates, as of other animals, people such as can avoid stressing them and can speak to them calmingly. Some ungulates clearly can take very easily to a life close to man, such as the most familiar domesticated ungulates like sheep, cattle, pigs and horses. Camels and llamas are also, as I remarked earlier, domesticated animals, and it seems likely to be a good approach to have them occupied, where practicable, in pulling carts or giving rides (see chapter 2, p 26, and 9.3.5, p 228 ff) (39). On the other hand, they may be occupied enough with their own social relations. As I have emphasised, domesticated animals appear to have retained, so far as I know in any case where this has been studied, a large part of their natural behaviour. So, given a large enough area, and a reasonably interesting environment within it, they may not require further occupation (see 9.3.4, pp 218-219).

10.6 RODENTS

Rodents have obvious requirements in the means to express

their NATURAL BEHAVIOUR, which in many cases will include burrowing. African crested porcupines at Glasgow have for many years now been kept in an enclosure they can burrow into, having formerly been in a tidy and wholly unsuitable enclosure with a concrete, if gravel-covered, floor. They are periodically moved temporarily from their main enclosure to another for a few months when the extent of their excavations makes this necessary. This seems a satisfactory solution of the problem of their eventually turning an enclosure of limited size into a sort of bomb crater. They have bred very well during the last few years, which thus seems to have gone hand in hand with an enclosure which allowed them to live fairly normal lives, and suggests how BREEDING can be a good criterion of wellbeing (40). Other smaller rodents, like gerbils for example, can be provided with a large peat-filled tank in which they can burrow and be shown to be very interesting and attractive animals. The same kind of approach is possible with many other rodents, and is surely the correct one, in that they ought to have such opportunities to burrow. Highly bred though laboratory mice and rats are, and adaptable though they are, it should surely be recognised as a great deprivation that they have, at least in normal laboratory cages, no opportunity for such burrowing. Where they can and do construct burrows, make nests and seem to be living normal social lives, then we have, I think, every reason to suppose they are in a state of wellbeing (41). I would accept that wild rodents need

such "natural" accommodation more than domesticated ones, but I think the latter ought to have it too. I do not believe we have bred the natural behaviour which would take advantage of such a situation out of them, and I do not think we can be sure they really are all right unless we can see their natural behaviour, or other behaviour which we have good reason to regard as an adequate substitute for it.

10.7 BIRDS

Bird-keeping has a very long history, as obvious from the Chaucer criticism of it (see 1.1, pp 6-7, discussed in 5.2.4, p 118). It is obviously quite possible that it could only seem acceptable because of being traditional, or, more reasonably, that certain particular methods of bird-keeping only seem acceptable because they are traditional. I think that the criteria are again the right guide, and the right guide not only to how birds of any particular kind should be kept but whether they should be kept at all. Clearly it is normal to regard certain birds as unsuitable to be kept as shown, for example, by a comment in a book on cage birds that no-one would dream of keeping puffins or shearwaters (42). Why are they unsuitable? Because they fly so far, and are creatures of the sea and air? Obviously such judgements apply also in some degree to nearly all birds. I think the point is that while all birds fly (with of course some exceptions) and therefore the keeping of any presents a special difficulty

- i.e. how we can keep them properly when it is essential to restrict them in a way that seems more drastic than is necessary with non-flying animals - they give us various indications, if we keep them, of wellbeing or otherwise, and it is reasonable to judge by these, especially if we keep a balance between the criteria. I shall try to show what I mean. One particular problem faces us, and that is how to regard those traditional ways of keeping birds which involve preventing them from flying. Clearly, the first and most obvious judgement, that a bird should have freedom to fly, is one that an experienced aviculturist (Lockley is interesting as being also a field naturalist) would make:

"...give your birds the maximum space you can afford. Birds are creatures of the air and light. Nothing is more depressing than to see a bird confined to a single perch in a tiny cage: this is sheer cruelty (as cruel as it would be to confine a man to a stool in a cage in which he could barely stretch his limbs)" (43).

Should there be any exceptions?

HEALTH, as with any other animal, is a good indicator of general wellbeing. A bird can be listless, or the opposite; an experienced bird keeper will be able to know at a glance if a bird is unwell (44). However physical health is not everything; sometimes it may overrule a judgement based on the requirement of natural behaviour. I am told, for example, that a parrot in an aviary is not necessarily well-served by being provided with a nestbox. If she has not been mated, she may still be encouraged to lay (infertile) eggs and runs a risk of being eggbound. I

include this example to demonstrate how experience and practical knowledge is important; but in no way does it invalidate the criteria. Another health requirement would be the need for exercise, which Lockley certainly recognises; here health and natural behaviour requirements go together, which is what one would normally expect.

Successful BREEDING is taken as an important indication of wellbeing with birds, surely quite correctly, in as much as it is a demonstration of freedom from stress and that any particular stimuli necessary for breeding are being provided, and, as an important part of natural behaviour, may be assumed to give the bird considerable satisfaction. There is a problem here, and that is the fact that many birds will fail to breed in free-flying aviaries with plenty of vegetation - in, that is, what appear to be highly satisfactory conditions - while they will breed successfully in small cages which seem far less suitable. There are I think many examples of this (45). I presume that a bird in the large aviary will suffer stress from the nearness of other birds, whose concentration in wild conditions would still be nothing like what it is in the aviary, despite the latter's size, whereas in a small cage the bird, although confined, feels less threatened by other birds. There may be other factors which encourage breeding in a small cage but not in a larger aviary. Perhaps a particular species could be allowed the freedom of a larger aviary for a certain period, and then be restricted to a small cage for

breeding. At any rate, I do not think either criterion - the fact of breeding successfully, or the need to have the chance to display natural behavour - should have absolute priority; I think a balance should be sought.

Despite this problem with breeding, the requirement of freedom to fly surely remains paramount as a basic part of a bird's NATURAL BEHAVIOUR. Obviously a minimum should be provided, but how important is much more than the minimum (46)? We feel eagles (and seabirds, like Lockley's puffins and shearwaters) have greater needs than budgerigars or parrots. Is this justified? I think it is, in as much as we can base our comments on knowledge of a bird's wild behaviour. An albatross hardly ever lands, and presumably has a special need therefore to fly. Parrots spend much time climbing on trees, just as peacocks and pheasants spend much time walking and scratching in the soil, and presumably therefore have a lesser need for the opportunity to fly far than an albatross, and than a Golden eagle. It is however difficult to know how far one is being objective in these judgements. Clearly we are good at compartmentalising; we show special sympathy with a confined eagle, and less with a parrot.

Even though parrots fly less than eagles, they still fly, and they climb, so surely to keep a macaw chained to a "stand" is quite indefensible. Presumably it is because macaws are capable of developing a strong relationship with man, and give very real indications of enjoying human company, and also because they in fact do not probably

need to fly as much as many other birds, that they can adjust to living on a stand (or at least appear to adjust), this including losing "the inclination to fly" (47). The direct indications (of the importance of a relationship with man - i.e. of enjoying human company) are important, but they can not outweigh the simple requirement to be able to fly, at least a short distance. Roots observes how parrots, cockatoos and macaws are sometimes kept in small cages too small to fly in, adding that this is perhaps acceptable provided they have "company throughout the day, and are allowed out of their cages for exercise", but, as he says, they often are not and face instead a "life of absolute monotony" (48). In view of such an experienced and professional aviculturalist's judgement that parrots often are kept without being let out, surely it ought to be unacceptable to have cages below a size allowing some degree of flight - for parrots or any other birds.

Here we have certain traditional practises which I think are quite clearly immoral (though keeping a parrot in a cage too small to fly is indeed much alleviated when the bird has much human company and is allowed out substantially). Another traditional practise with certain birds which seems quite out of line with what would now be regarded as acceptable treatment of any other kind of animal is pinioning and, perhaps, wing clipping. Interestingly Hediger adds, emphasising the importance of any captive animal's having opportunity to move in its

characteristic way, "if we leave out birds" (49). But why should we? Is not pinioning, which consists in cutting the wing at the carpal so that there is no base for the primary feathers, and is thus anatomically, if not behaviourally, equivalent to cutting off the hand, a case of mutilation and obviously objectionable? It is quite an interesting case, and worth looking at.

Is it any more justifiable than such also traditional practises as the docking of tails, and even the cropping of ears, in dogs (or even something still nastier, debeaking of poultry in batteries and docking of tails of intensively kept pigs)? I think in fact it is more defensible than these. First, however, note that it is the effects of the operation, rather than the performance itself, which is the main matter for concern. The operation can no doubt be done humanely. We can hardly say that every invasive non-medical operation is necessarily unjustified or wrong; presumably the spaying of domestic dogs and cats is done out of genuine necessity and responsibility, arising out of the nature of reproduction (that there is going to be "over-production" unless something happens to limit numbers, as would happen in natural circumstances). Spaying, although indeed interference with a basic activity and instinct of dogs, is not interference with as basic an activity as is pinioning. Some humans do choose to have a vasectomy, for example; it would be strange to choose amputation of arm or leg (where there is nothing wrong with them) (50).

It is significant that it is a) birds (exclusively among vertebrates), and b) waterfowl (and also "large ground-birds") among birds, that are treated this way (51). The special factor about birds is that they usually have at least two means of locomotion, walking and flying, while waterbirds have three, walking, flying and swimming. To destroy an animal's means of locomotion presumably seems to matter less when that animal has two other major methods of locomotion at its disposal. But I think this only explains how pinioning could become or remain acceptable where similar treatment of some other animal would not. There is of course another factor and that is just that the special quality of flying makes it more difficult to confine a bird than a non-flying animal. But furthermore pinioning has made it possible to keep waterfowl and certain ground-birds in a free-er state than they would have if they were in cage or aviary. Pinioning can also have a serious, conservational purpose, and it is relevant that pinioned birds can still breed (52). I accept that it apparently does not upset the bird much, though the Wildfowl Trust make it a policy not to have pinioned birds with non-pinioned ones at migrating time, because it is painful to see pinioned birds (and presumably would be for the birds themselves to experience this) trying to take off with their fellows. My conclusion is that it is mainly its being traditional that makes pinioning seem acceptable, and that it should not be regarded as acceptable unless, at least, there is a very

strong conservational case for its use in any particular instance.

Wing-clipping, as opposed to pinioning, has the advantage of not being permanent but the drawback of probably necessitating reinterference with the bird each year. It could, in a way, allow more freedom, or at least be done for the bird's protection. I think of a case of a cockatoo given the freedom of the house except when its owner is away, but where the bird is clipped to some degree so that it cannot fly well enough to injure itself by colliding with the light fittings on the ceiling. Here the considerable degree of freedom would presumably be worth the partial loss of flight.

It is sometimes possible to keep birds with a high degree of freedom, to have them freeflying and remaining around merely by choice (say because food is available) (see 9.3.5, p 221). Birds of prey can also be kept in a way which, while it limits their freedom, indeed involves very much their being trained, obviously still allows them to fly and virtually in the way they would in the wild state.

ABNORMAL BEHAVIOUR is well known in certain birds, such as parrots, and is as clear an indicator of something wrong as with certain mammmals' abnormal behaviour, though, like polar bears', it can persist even when the conditions seem to have been put right (see 9.4, p 237).

10.8 REPTILES

It is still probably true that zoos in general know far less about how to keep reptiles satisfactorily than mammals or birds (52). But the criteria seem our best guide to how to improve the situation, to judge both captive reptiles' wellbeing, and how we may seek to improve it.

HEALTH is one obvious factor, whether judged by absence of disease (greatly aided by the the enormously important optimum temperature, and by dryness, though water is important too (53)), or by length of life or rates of feeding and of growth. These rates can vary enormously in, for example, alligators, which can grow very fast (sometimes thanks to extra vitamins), or almost stop completely, as recorded of an alligator in the Tower Zoo 140 years ago, and no doubt on numerous more recent occasions (54).

Measured by rates of feeding and growth, health as a criterion needs to be corrected where necessary by NATURAL BEHAVIOUR, and indeed by natural conditions: e.g., some reptiles, kept too continuously at what appears (not least from the reptiles' own preference) to be their optimum temperature, can grow very fast, but be "burning themselves out" (55). The most detailed knowledge possible of how any particular species lives in the wild should be our guide to how to keep it, and will probably indicate that any particular species needs a good deal more variation of temperature and of other conditions than is

often appreciated. The degree of natural behaviour observed - e.g. territorial displays by iguanas - provides, more if anything even than with mammals or birds, the best indication we have of reptiles' wellbeing.

The most important kind of natural behaviour is usually taken, quite properly I think, to be BREEDING. Obviously we want this to occur for conservational reasons (indeed often as a first step towards zoos being self-supporting, reptiles being still very often taken from the wild rather than born in captivity), but apart from this, with reptiles perhaps especially, breeding seems an excellent criterion for captive wellbeing, mainly because it often is so difficult to achieve. The difficulty arises from the number of factors which can be important for different species' breeding, such as the right humidity, day length, temperature, degree of temperature variation during the twenty-four hours, need for a period of hibernation - which itself will require a drop of temperature, but not too much, as well as a suitable place to hibernate in, or separation of the sexes for a period (56). Sometimes what amounts even to disturbance, like a pair of snakes being transported in a bag or box, will produce a necessary level of excitement resulting in successful mating. Such a drastic remedy as this, the apparent providing for a short period of poor, stressful conditions, would clearly require careful and experienced management for its success to be likely, so it does not, I think, amount to an exception to the

generalisation that reptiles are, as it were, enormously fussy, so that success in breeding them can often be a considerable achievement. Even unsuccessful breeding behaviour can signal significant improvements in conditions (57). Keeping reptiles can pose even considerable problems in pairing up animals correctly, so that failure to breed in itself does not prove an enclosure or keeping technique to be inadequate.

Some reptiles, such as some snakes, can be easily tamed, and thus give DIRECT INDICATIONS of their wellbeing, of, as it were, their acceptance of their captive state. I think a snake can indicate, when handled, whether it is being stressed, whether it is relaxed, and so on. Indeed it can register resistance to being handled, by its threatening posture and of course by hissing. Still it may be that a snake can become so tame that it will not resist even if handled or touched for long periods, but may still be stressed (see 9.1, p 201).

Our THEORETICAL APPRAISAL needs to recognise that an ideal snake enclosure, for the snake, would probably be one where the public never saw it (see 9.6.4, pp 258-259). We must attempt a compromise, trying to provide attractive areas where the snake will lie in view of the public. But it should have areas to retreat to, including a cool place for retreat from any area of higher temperature we are encouraging it to lie in so that it can easily be viewed. The theoretical appraisal should include detailed consideration of factors like the means of providing heat

– e.g., radiant heat should be available, because this is how reptiles obtain their heat in natural conditions – the need for daily change of temperature, the degree, if any, to which one can expect a reptile to accommodate itself to conditions other than those like the wild, and the size of the area provided, and whether this is likely to be enough in view of the species' range in the wild (58).

Clearly responsible reptile keeping is a highly technical business, and should include as a high priority the obtaining of maximum information concerning the natural life of any species kept in captivity. It is a pursuit for enthusiasts and specialists, and many good reptile keepers probably are in fact keen amateurs, prepared to go to any length and trouble to improve the conditions of their reptiles and especially to get them to breed. The very difficulties of reptile keeping and breeding make cooperation between professionals and between amateurs particularly desirable, as now occurs in zoos in Britain through their Joint Reptile Management Committee, and among amateurs and professionals through such organisations as the British Herpetological Society, with its own journal.

NOTES TO CHAPTER 10

1. Thomas Hood, Remonstratory Ode, in G. MacBeth (ed), The Penguin Book of Animal Verse (Harmondsworth: 1965), pp 101–106, espec. p 102: "All the nine little Lionets are lying / Slumbering in milk, and sighing..."
2. Markowitz, op. cit. (p 265 above, Note 32), pp 175–179 (servals); p 196 (on lions' not needing enrichment).
3. Morris, op. cit. (p 265 above, Note 39).

4. The Scotsman, 1 August 1987.
5. E.g. polar bears require a large daily ration of Vitamin D (which they would obtain naturally from seal blubber), without which their skin develops black, warty areas.
6. Notably London's attendance of three million in 1950 thanks to the Polar bear cub Brumas (see Cherfas, op. cit. (p 21 above), p 77).
7. Markowitz, op. cit., pp 175-179 (polar bears); J.R. Bareham, "General Behaviour Patterns of Wild Animals in Captivity", UFAW Symposium, op. cit. (p 264 above, Note 5), pp 90-93, espec. p 92.
8. "Ariadne", New Scientist 114, 1563, 4 June 1987, p 112; The Scotsman, 1 August 1987: "The petition was launched ..after public concern over a report ...which showed that polar bears were damaged mentally by captivity and the outcry over the death of a boy in a New York zoo who was eaten by bears."
9. B Grzimek, Wild Animal, White Man (London: Deutsch and Thames and Hudson, 1966), p 204; the bears were trained at the request of Amundsen, apparently for an Arctic expedition, but not used because of the trainer's reluctance to go.
10. Williams, op. cit. (p 183 above, Note 23); Schomberg, op. cit. (p 21 above), p 109; G.B. Schaller, The Year of the Gorilla (London: Collins, 1972; first pub. 1964), p 230.
11. M. Midgley, letter to The Independent, 26 August 1987, especially concerning the "manifest public misery of Guy the Gorilla" (who died at London Zoo in 1978 about 33 years old). For comments by Guy's keeper, who clearly had a close relationship with him, on criticism of his captive conditions, see J. Alldis, Animals as Friends (Newton Abbott: David & Charles, 1973), pp 98-99.
12. A. Dixson, letter to The Times, 20 August 1980.
J. Mein, letter to The Times, 30 August 1980.
13. Blunt, op. cit. (p 43 above, Note 44), p 40 (orang).
14. See chapter 2, p 33, for Owen's criticism of primate accommodation at Regent's Park.
E.g. the degree of care extended to the dying chimpanzee Consul at Manchester (Morris, op. cit. (p 42 above, Note 30), p 67).
15. Badham, op. cit., p 39.
16. For the situation today, see chapter 13.
17. Though not always in large groups, e.g. orangs and gibbons which would naturally be in small family groups. This is one reason why orangs are more difficult to keep well than gorillas or chimpanzees, which can be kept in large groups, creating interest for themselves.
18. M. Badham, "The Requirements of Primates in Captivity in Zoological Gardens" in UFAW Symposium, The Welfare and management of Wild Animals in Captivity (Potters Bar: UFAW, 1973), pp 39-43, espec. p 40.
19. L. Williams, Man and Monkey (London: Panther, 1969), e.g. p 30 ff; J. Aspinall, The Best of Friends

(London: Macmillan, 1976).

20. J. Aspinall, "The Howletts Gorilla Bands", International Zoo News 195, 33/1, Jan/Feb 1986, pp 11-19, espec. p 12; F. de Waal, Chimpanzee Politics (London: Cape, 1982).

21. Badham, op. cit, p 40; Aspinall, op. cit., p 19.

22. Morris, op. cit., pp 68, 70.

23. L. Woolf, An Autobiography 2: 1911-1969 (Oxford: OUP, 1980), pp 325-328, 330-332.

24. J. van Lawick-Goodall, In the Shadow of Man (London: Fontana/Collins, 1973); above, Note 6); J. Goodall, The Chimpanzees of Gombe - Patterns of Behaviour (Harvard University Press, 1986); G. Schaller, The Year of the Gorilla (London: Collins, 1972).

25. J. van Lawick Goodall, In the Shadow of Man (London: Fontana/Collins, 1973), p 277.

26. As Badham notes the gorillas at Twycross are enabled to do thanks to the moat (op. cit., p 39); ibid, pp 40 (on the need for continuity of keepers) and 41; Aspinall, op. cit., p 19.

27. C.R. Coid, "The Management and Care of Simians in Biomedical Research Units" in UFAW Symposium, op. cit., pp 34-38, espec. pp 35, 36.

28. Ibid, p 37.

29. Ibid; Badham, op. cit., p 99.

30. B. Travers, "'Inadmissible Evidence'" in V. McKenna et al, op. cit. (p 23 above, Note 18), p 204; D. Macdonald (ed), The Encyclopaedia of Mammals: 2 (London: Allen and Unwin, 1984), p 459.

31. Portland Zoo in America is an exception; in Britain there have only been three successful elephant births, one at Chester and two at Howletts; see, e.g., R. Carrington, Elephants (Harmondsworth: Penguin, 1962), p 35 on must. Working elephants in Asia apparently breed but usually following mating between females free in forest and wild males (K. Eltringham, "Elephants in zoos" in Biologist 31, 2, April 1984, pp 108-111, espec. p 109).

32. Both Edinburgh and Glasgow Zoos within the last fifteen years have had experience of incompatible female elephants.

33. Eltringham suggests a small herd in much larger enclosures (op. cit., p 111).

George Mottershead, founder of Chester Zoo, abhorred and forbade the chaining at Chester of any animal, including elephants.

34. Cherfas, op. cit. (p 21 above), p 121; Travers, op. cit.; though cf Eltringham, op. cit., p 109.

35. Field-Marshal Sir William Slim, Foreword to J.H. Williams, Elephant Bill (London: Reprint Society, 1951).

36. Campbell, op. cit. (p 41, Note 6), pp 77-79.

37. Ibid, pp 69-72.

38. C.R. Thouless and L. Chongqi, Milu Reintroduction Project, Interim Report June 1987, WWF / Ministry of Forestry of the People's Republic of China.

39. A.D. Bartlett, Wild Animals in Captivity, edited by E. Bartlett (London: Chapman and Hall, 1899), p 251: "To those accustomed to pass much time among animals the influence of speaking to and kindly treating them is... well known..."
Safety considerations, and the size of modern insurance claims in case of injury, may decide against such activities as animal rides for the public.
40. G. Law, H. Boyle and J. Johnston, "Notes on the Management of the African Crested porcupine (Hystrix cristata) at Glasgow Zoo", Ratel (Journal of Association of British Wild Animal Keepers) 13, 1, Feb 1986, pp 27-30.
41. Cf R.A. Davis and R. Redfern, "The Capture and Maintenance of Wild Rats, Mice and Coypus", UFAW Symposium, op. cit., pp 12-18.
42. R.M. Lockley, The Pan Book of Cage Birds (London: Pan, 1961), p 14.
43. Ibid, p 16.
44. "Healthy birds will be bright of eye, have tight feathers, and will look interested in what is hapening around them" (C. Roots, Exotic Birds for Cage and Aviary (London: Cassell, 1971), p 81).
45. One example would be a fine, naturalistic aviary in the Bronx Zoo, New York; they have much bird breeding, but not in the aviary, in smaller cages. I was told of very similar experience at the former Winged World at Morecambe.
46. Lockley, op. cit., p 16.
47. Ibid, p 88 ff; Roots, op. cit., p 80.
48. Ibid. (This is more a point about private bird keepers than zoos, but of course the criteria are as applicable to keeping by anyone anywhere and, though zoos tend to do things on a bigger scale, there is no difference of principle here; Roots himself was curator of a former bird collection, the Winged World at Morecambe.)
49. The first is an operation, and irreversible; the second a temporary measure which, if repeated, therefore involves again disturbing the bird.
H. Hediger, Wild Animals in Captivity (New York: Dover, 1964), p 52.
50. See D.G.M. Wood-Gush et al (eds), Self-awareness in Domesticated Animals (Potters Bar: UFAW, 1980), pp 51-52.
51. A. Landsborough Thomson, A New Dictionary of Birds (London: Nelson, 1965), p 633.
52. M. Peaker, "Some aspects of the thermal requirements of reptiles in captivity", Int Zoo Yb 9, 1969, pp 3-8, espec. p 3.
53. C. Kauffeld, "The effect of altitude, ultra-violet light, and humidity on captive reptiles", Int Zoo Yb 9, 1969, pp 8-9, espec. p 9.
54. J. Whitworth, "Notes on the growth and mating of American alligators at the Cannon Aquarium, Manchester Museum", Int Zoo Yb 11, 1971, p 144; Bennet, op. cit. (p 42, Note 27), p 232.

55. Peaker, op. cit., p 4.
56. J. Laszlo, "Further notes on reproductive patterns of amphibians and reptiles in relation to captive breeding", Int Zoo Yb 23, 1984, pp 166-174, espec. p 163.
57. M. Meyer-Holzapfel, "Notes on the breeding and egg-laying of some reptiles at Berne Zoo", Int Zoo Yb 9, 1969, pp 20-23.
58. Peaker, op. cit., p 5.

Chapter 11

CONSERVATION AS A MORAL CONCEPT

In this chapter and the next two I shall consider zoos' conservational work as a possible moral justification for them, and will try to answer three main questions:

1) Is conservation in general a moral matter?

2) Is animal conservation in particular a moral matter?

3) Can zoos make and are they likely to make any important contribution to conservation?

The first of these three questions will be my main concern in this chapter, the second in chapter 12, and the third in chapter 13.

11.1 CONSERVATION AND STEWARDSHIP

The concept of conservation itself is first worth briefly considering. It is a matter of "saving", obviously (this much may be presumed from the word's derivation), or protecting, but is this a kind of saving at all distinct from that suggested by the term "preserving" (1)? I think that, where preserving something tends to mean keeping it in existence, conserving it tends to mean keeping it either alive or metaphorically alive, that is, active, in working order, and so as to continue to be of practical use to us, and probably so as to continue to develop. You normally conserve something you need or may need, or which

other people may need. It usually involves being selective: you conserve what is useful in preference to what is not, or what is important in some other way rather than what is not, which is one reason why conservation is a generally responsible business. For example with building conservation, a policy of conserving all buildings as such would be virtually incoherent, producing a situation where there was no room to build any more. You could only sensibly favour the conservation of certain buildings (whether on architectural or historical merit or practical need or some other factor).

I think there is a considerable range of different kinds of things which we may properly conserve:

1) Precious objects, including works of art of various kinds and buildings (2).

2) Skills and practises.

3) Traditions and ways of life.

4) Institutions (no doubt overlapping with the last).

5) Animals and other living organisms.

6) Ecosystems, natural areas and non-living natural objects.

7) Resources, including energy resources.

(This is not intended to be an exhaustive or even a very precise list, or its categories necessarily exclusive.)

I suggest that the correct and creditable attitude to adopt towards any of the items on this list is one of stewardship, which I would characterise in three ways:

1) Any particular item in any of the categories may be regarded as better or worse of its kind, in some cases in a moral sense, sometimes (whether or not also morally) in aesthetic and perhaps other senses.

2) The better it is of its kind, the less it should be regarded as entirely one's own property (even if it is legally one's property), and the more as being held in trust for others.

3) The appropriate ways of using it and caring for it will be dictated by its own "rules" which the responsible and sensitive user will want to obey; he will be aware that he is to some extent following dictates not of his own making. These rules or dictates amount to the best or correct way of using and looking after the item, and are learnt from an understanding of that kind of item.

Stewardship is an attitude towards and a way of behaving towards something which I think would include conserving it (should it be worth conserving).

11.2 CARING FOR OBJECTS

I suggest that things, including certain non-living objects, whether natural or man-made, can demand a respect from us - that how we treat them, even if they are our property, may not or should not be entirely up to us, as shown by the fact that we can properly be blamed for mistreating them even if, again, they legally belong to us.

While I cannot establish this fully by argument any

more than, for example, according to Hume (as usually interpreted) an "ought" can be deduced from an "is" (3), I will try to show, mainly by means of examples, a) that "respecting objects" fits in with the common experience of most of us; b) that it is quite easy to see how respect for objects is morally good in a sense which often seems valid, i.e. is simply altruistic towards other humans; c) that such valuing is a necessity or near-necessity for human society, not just our own but probably any.

a) It was found after Lady Churchill's death that she had destroyed Graham Sutherland's portrait of her husband. We might feel that the painting, though undoubtedly her property, was not hers to destroy. I am not concerned here with whether works of art or any other objects (other than animals) have an intrinsic value, a value independent of their actual or possible use to humans, but only with whether certain objects would be normally regarded as having a value such that their owner had no right to destroy them or ill-treat them, and such that someone who did not own a particular object might still owe it a respect which could not be identified with a respect due to it as some other person's property.

The owner of a particularly fine house (architecturally or historically) might have a conservation order placed upon it. But irrespective of the legal situation, we might well feel disapproval towards such a person for demolishing his house, even though it was clearly his property (and, let us suppose, we have no

personal involvement - we are not hoping, for example, to inherit it). Thus we do consider that a person can have a duty concerning an object which belongs to him, and a duty, when the object merits this, to conserve it.

b) Consider a person who feels it his duty to clean his car regularly. Although such cleaning can no doubt be taken to extremes (and although I am lax at cleaning my car and my conscience remains untroubled by this), I suggest that such an attitude of respect towards one's car is something itself we should have some degree of respect for (4), perhaps indeed because cleaning it is likely to go hand in hand with maintaining it (one might compare the military stress on the outward appearance of equipment), which is for several reasons helpful towards others. For example,

(i) if you can maintain your car, you are in a position to help others maintain theirs, or maintain public vehicles if such a need should arise;

(ii) a car can be a dangerous weapon, but is less likely to be a danger to others if well-maintained.

A respect for, even a love of, one's car (such as might express itself as a feeling of duty towards the car itself) perhaps ought itself to be respected because such an attitude is likely to produce a really skilled or practical understanding instead of a rough understanding. One might say 'instead of an "amateurish" understanding', but of course the derivation of this term, which has come down in the world, is significant. The lover of cars will

be the real mechanic, whether professional or not. A professional mechanic can be in the modern sense amateurish, as recounted by Pirsig (5).

But perhaps the important thing is that this kind of respect spills over into respect for other things, as shown in my second example, an actual case of a woman social worker who instructs young delinquent car-stealers in the art of maintaining motorbikes and thus instils in them a general respect pretty obviously in the interest of society and of us all as members of society (6).

c) I think any society depends on the keeping of certain machines or tools in working order, or at least on their not being wantonly damaged. We need (certain) objects; therefore an attitude of respect for (certain) objects is a good, a generally beneficial, attitude.

As things to be respected I have mentioned cars, houses and pictures. The owner of a work of art perhaps owes mankind the duty of not destroying it (a duty whose strength will be exactly correlated with the fineness or otherwise of the work of art) (7). The artist is very likely to feel a duty to his own talent (as in what I would presume to be an extreme case, that of Gaugin). So may the performing artist (as Janet Baker made clear in a recent radio interview). The composer undoubtedly may (Beethoven felt his talent as a gift from God). The performer can feel a duty, and I think it is likely to be felt as a moral duty, to be true, for example, to the spirit of the music he is playing.

Sometimes unusual events may invest what would otherwise be ordinary objects with a special significance - for people, of course, necessarily - but still something which makes them, or ought to, almost "sacred" - e.g. the comment of a survivor of the Clydebank blitz about the removal by the local authority after the blitz of a well-known clocktower which had survived surrounding destruction: "I hated them for that" (8).

I am not looking at this matter of respecting externally as a sociologist might; I rather want to suggest that we are right to respect or value things in certain cases - when of course they seem to us worthy of being valued. Although we have to value selectively, and can select by assessing the strengths of the possible reasons for valuing any particular thing, at the same time there is a basic quality about valuing; it is a foundation for any other pursuit, indeed for keeping on living (9).

11.3 VANDALISM AND BAD CONSERVATION

The concept of vandalism, which I think is meaningful to all of us, demonstrates how we do not regard wanton or careless destroying of something of value as merely a way of behaving we do not care for; we condemn it, I think, as in itself immoral. Vandalism includes the stupid damaging of things of vital importance (crops or food supplies or telephone boxes someone's life may depend on) and it is easy to see why damaging these could be a moral matter. But even if beauty or historic interest or great age is

what we value something for, we still regard it as an immoral act to wantonly damage that thing.

I see vandalism as at least a partial opposite to conservation. If vandalism is immoral, then an attitude of caring properly for any fine things, which is what I think conservation is, or at least clearly akin to, is likely to be morally creditable. And indeed one can easily see how this can be if the things in question are of value to or of use to people in general, or many people, or future people (10).

Sometimes there will be disagreement about whether something is vandalism. My example of Lady Churchill's destroying of the Sutherland picture I would be inclined to call vandalistic, but she had her reason, her husband's intense dislike of the painting. The explorer Richard Burton's widow destroyed his life-long journals on his death to protect his reputation. This seems vandalistic, but she thought she was serving his interests (11). A Mrs Radcliffe destroyed the series of letters on his metaphysical system that Bradley had sent her (12); well, if he was fool enough to write to her in these terms, why should she have bothered to keep them? But if she had put them aside as meaningless to her but possibly of use to someone else, this at least would, it seems to me, have been a creditable "conservational" or "respectful" attitude: that of anyone who though unappreciative of something himself yet recognises and respects someone else's apparent appreciation of it. I should add that

vandalism, as I see it, can be committed by governments or powerful institutions as well as by individuals or groups of young delinquents. An example might be the hasty destroying without real need or thorough preliminary investigation of rare peatlands in Caithness and Sutherland by the merely commercial planting of sitka spruce and lodgepole pines (13).

Although I think conservation has a built-in implication of moral approval, rather as vandalism has a similar implication of disapproval, I recognise the possibility of bad conservation. There is first a terminological point to note. If we have a case of what would normally be vandalism but which we think is justified by special circumstances, we may either choose to call it a rare case of justified vandalism or deny that it is vandalism. Similarly the conservation of cockfighting, for example, we may either regard as a rare case of bad conservation or deny it to be conservation. Compare the term "murder", which normally carries our disapproval as part of its meaning. But even so occasionally some particular illegal killing of another human seems justified. We might then call it a justified murder or, more likely, perhaps deny that this particular case amounted to murder.

But there are more than terminological points here. I think that, just as it fits in with normal human experience for murder to be normally condemned, and for the simple reason that any human society would find it

extremely difficult to function if if had no concept of murder, similarly it fits in with normal human experience that on the whole adopting a conservational, a caring, attitude to what is generally valued, or perhaps to what any member of the society values, is beneficial to the society.

But obviously it cannot be right to conserve anything just because it happens to be valued either by ourselves or by someone else. Cockfighting is an interesting example. Others connected with animals would be bullfighting or bearbaiting, and perhaps some cases of animal keeping as such - perhaps of course zoos themselves. I included "It ought to be conserved" as a possible justification for animal keeping in my list of possible justifications in chapter 1 (8b, pp 15 and 17), and of course the obvious weakness of this as a defence is that it could be used for anything, such as cockfighting or even worse things like the use of torture. Of course we have to evaluate. It is basic to conservation to involve selection, for we could not possibly conserve everything. If an attitude of conservation leads us to look for the good elements in something, if, even, we give things the benefit of the doubt as far as possible, and do not rush to destroy them, then I think we can see how it is a useful approach to adopt.

Cockfighting is a by no means merely academic example, as illustrated by a book on cockfighting by Finsterbusch (14). Clearly the author sees it as a good

thing that these special breeds of fowl should be conserved, mainly just because of their special, fighting qualities. The foreword (by the President of the "Old English Game Club") mentions how -

"the courage of game Cocks lives in stories, legends and the language itself. Gameness to the end is a characteristic that is admired by all sporting men and women throughout the world."

The author has enthusiasm, an interesting story to tell, quoting many authorities; he is dealing with an amazingly widespread group of activities; he could no doubt claim to be an "expert" and could tell us we were in no position to criticise from our standpoint of ignorance. But of course we object to cockfighting; we regard it as cruel. And the strength of our case is that we can specify what we mean by cruelty, and in what ways cockfighting is cruel, and we can bring expert witnesses such as veterinarians and zoologists to support our case. And of course in this country the matter is academic in as much as it has been illegal since 1849 (15), though not academic in as much as it may be practised illegally, and in as much as there are other practises still legal which we might have as good reason for objecting to (such as hare coursing and perhaps fox or other hunting). There are no doubt elements even in cockfighting which are good in themselves and which would allow a reasonably convincing case to be made out for conserving it. This underlines the need, if we want to decide whether something should be conserved, to consider what reasons can be given.

11.4 CARING FOR INSTITUTIONS

I included institutions in the list of things which could be conserved, and was thinking of human organisations like, for example, schools and colleges. Clearly there is a strong case for at least hesitating to destroy something like an established school which has, say, proved itself academically. Scruton goes so far as to classify institutions as persons (16), and I see that they do have personality and are at least like developing, indeed evolving, organisms. Marvell put the pros and cons of national demolition and reconstruction very well in his Horatian Ode, and while I do not suggest the Zoological Society of London rivals the British constitution in importance one could reasonably hesitate to ruin even this "great work of time", even if one objected to certain of its activities as strongly as some of its critics seem to (17).

There may be more worth considering in the comparison. After all one reason for conserving animals is the long time they have been evolving ("vaster than empires, and more slow", indeed, like Marvell's vegetable love) and I think striking comparisons between the evolution of human artifacts, and institutions similarly, and the evolution of organisms can be drawn. Consider the occurrence of vestigial features in dress, and the way in which any new "invention" almost invariably is a development of something already existing. There seems a good deal in Dawkins's "memes", analogous to genes (18).

Perhaps human institutions can look after themselves, but then many would want to feel the British Parliamentary System, say, was something to protect against attack. Of course if an institution is clearly objectionable its long history is no reason for keeping it, no more than its being a tradition is really a good reason for keeping some practise we regard as strongly objectionable, but the defence is worth something; it is a reason for being careful, for being sure of our case.

11.5 HUNTING, APPRECIATION AND SKILLS

I have already mentioned different forms of hunting as activities which could be candidates themselves for conservation, but presumably to be regarded on humane grounds as objectionable and not therefore meriting the implied valuation of conservation. Now in fact hunting requires our consideration for it has a special importance in connection with nature conservation, most obviously because the whole point of animal conservation historically was to ensure a continuing supply of animals to hunt. One good or useful thing about hunting is that it does produce a motive for conserving not just animals, but the animals in their habitat; for, we might say in fact, real conservation in that the animals living their natural lives are conserved, or, to put it another way, the animals' ways of life, not just the animals themselves, are conserved. Thus hunters can, and do, claim to be protectors of the countryside, even in some degree

creators of it (19). On the other hand the changes in the countryside they require are not necessarily desirable from other points of view (such as the way heather is maintained for grouse?). And conservation of the prey species may involve the determined removal of humans' rival predators, and historically a lot of human rival predators who had the misfortune not to be royal or wealthy were controlled too sometimes with extreme cruelty (20).

But still the appreciation of animals, even of the prey itself and certainly of the prey's natural surroundings, is I think something that ought itself to be recognised and appreciated. Appreciation by hunters and wildfowlers of the prey's natural surroundings comes out in an account like that of the duckshoot in Anna Karenin (21), and of the prey as well as its habitat in Corbett's Man-Eaters of Kumaon. Corbett is a first-rate naturalist and some of his experiences concerning tigers seem not only remarkable but unobtainable except in the course of hunting one. Corbett was of course himself a conservationist and became a hunter of maneaters only. Thus some of his experiences can be enjoyed where they could not be had they occurred in the course of unnecessary killing (22).

Corbett's skill is an example of one which, however distasteful or capable of being misused, ought itself to be conserved; i.e., whatever one thinks of hunting, there is always a possibility of a situation arising when it may

be desperately necessary. And obviously it is a complex skill, may require life-long practise and study, and is thus likely to be possessed only by a true lover of hunting.

Actual shooting or hunting skills are required for culling in the course of conservation, or simply when for some reason it is necessary to kill an animal, and not at all easy to do it humanely (see, for example, chapter 2, p 33 above, concerning the difficulty of killing an elephant); somewhat comparable are the skills of gamekeepers in releasing pheasants and partridges useful in the purely conservational attempt to release captive-bred Cheer pheasants (an endangered species) into the wild in India; knowledge of how to capture large animals by drugging them or other means - needed for relocation of wild animals threatened perhaps by natural disasters; the knowledge of wildfowlers proving useful in the protection of wetlands (23); and knowledge of the keeping in captivity of any particular species, whether this is professional or amateur knowledge. Often amateur keepers of birds such as parrots, or of reptiles such as snakes, may because of their enthusiasm and interest in one or a few species have experience the professional lacks. It is useful that such experience be available: if a sudden need arises for the captive breeding of a particular species, as it has with the Californian Condor (24), it is then likely to be too late to start acquiring the necessary expertise.

Schomberg thus has a point when he gives as a ground for the city zoo's probable decline's not being necessarily a good thing, that "the major urban zoo with varied accommodation for every type of animal is...a necessary and valuable contributor to the art of wild animal husbandry" (25). Schomberg is rather implying that wild animal husbandry is a good thing in its own right, or is good because it can be improved and developed, and this second point of course is the fallacy noted by Jamieson (see p 9, and Defence 13a, pp 15, 16). But Schomberg's first implication is worth something: the recognition of expertise to be conserved unless we are very sure that it will never be needed or indeed is so inhumane or objectionable in some other way that even possible usefulness is no reason for keeping it - which would be the case with the expertise of cockfighting.

I have here given "animal" examples of particular skills which may be of something objectionable in some respects and yet advisable to conserve for use in special cases. But many examples from other fields come to mind - military or policing skills, even surgical skills - which are obviously only acceptable when used by authorised specialists in appropriate circumstances but, given those restrictions, of enormous importance.

This suggests the desirability of actively encouraging or not discouraging the conserving of different activities as a working rule, but at the same time with recognition of the need to be selective,

particularly on humane grounds when necessary - which rule out activities like cockfighting. Clearly there will be cases which are difficult to decide on.

I included resources in the list of things which could be conserved. Now while the obvious resources are coal, oil etc - and in the twelfth century were rivers, forests and sewers (26) - in a way this perhaps applies to everything conserved. That is, it is part of the meaning of conservation, as I have noted, that you conserve what is useful; what is useful is a resource. Now animals (or rather certain ones) were a resource because they were needed for hunting; partly they were thus a food resource, this being of course the basic or original reason for hunting, but partly and I think much more importantly as far as the royal and aristocratic circles who were in a position to conserve animals were concerned, they were a resource for a particular kind of pleasure. One can dismiss this as a mere pleasure in killing, or, more convincingly, as a mere pleasure in pursuit, but I think it would be a mistake to ignore the almost aesthetic pleasures, almost, indeed, spiritual pleasures involved. One gets people today talking about this with regard to fishing, though fishing has questionable aspects, some of them well illustrated in Walton's Compleat Angler (27).

I emphasise this aspect of hunting because it points the way towards what one hopes is the situation today, that we can agree to regard wild animals as a resource (I do not mean as a resource exclusively) for aesthetic and

even spiritual satisfactions. I think the appreciation of animals could be seen as developing into a kind of appreciation free of any connection with hunting (except where this is strictly necessary, as I think is sometimes the case). Sir Peter Scott is one naturalist who used to go wildfowling but decided against the pursuit (28); no doubt there are many similar cases.

It should be mentioned that there are analogies between hunting and war, not least in the extreme seriousness with which both are pursued, though at least one is a recreational occupation; the accompanying trappings and rituals, again taken in both cases with enormous seriousness and serving to give the whole a kind of ritual, almost religious, quality; and the seriously regarded rules on apparently non-essential matters which occur in both, including honour in war and sportsmanship in hunting. (An interesting case is Corbett's guilt over shooting a sleeping tiger, though a maneater already responsible for many human deaths.) It would be felt, I suspect, as a moral matter by practitioners of both activities to conserve such rules and their obeying (29).

11.6 CONSERVING THE NATURAL WORLD

Now we might ask whether it is a moral matter to conserve natural areas, and I think it is because it is responsible in a whole manner of ways to do so (as far as possible; it is, as we have seen, essential to conservation to select.) We can list various ways in which it is likely to be in

the interests of other humans that we do so:

1) the importance of rain forests as "sponges" which absorb water, releasing it gradually, and thus preserving surrounding farmland, preventing desertification and flooding;

2) the whole interlockedness of species so that loss of one may injure us in unexpected ways: a point well understood long ago by, for example, Darwin, Frank Buckland and Corbett (both the latter with regard to tigers) (30);

3) the fact that tropical rain forests contain huge numbers of species, more than any other habitat, thousands of them plants as yet unnamed and unstudied, many of them doubtless potential sources of medically valuable drugs;

4) that it is in any case vandalistic to destroy needlessly species every one, whether yet known or unknown, of scientific interest, anatomically, chemically, perhaps behaviourally (perhaps even important for the light it may shed on humans, like Goodall's chimpanzee studies), perhaps with some important practical application.

This list could be multiplied considerably, and any and all these considerations are reasons why it is responsible to conserve tropical forests (very obviously) and in some degree any natural area at all.

Still, with the exception of the rain forest's importance as a preserver, itself, of habitable land around it, the reasons tend to be rather theoretical, and

to be concerned with future possibilities rather than present certainties. In practical terms they will carry weight with those in a position to appreciate them - obviously the botanist or coleopterist (most animals are insects, and most insects are beetles), may weep over the prospect of the appalling losses that continued destruction of the Amazon forest at present rates will mean, but people without direct experience or involvement may not be deeply moved. Not all natural areas are vital to our survival, and some people stand to make great profits from their destruction (sometimes actually with government assistance); if financial considerations are the main ones, it may be that a quick profit now which can then be invested (even at the cost of the extinction of a species - say Blue whales, say) will make business sense (31).

Now I have suggested already that caring is of great importance; that it is caring about something that is going to result in looking after it and (if one knows enough about it, as well as caring about it) using it properly. So much is obvious. Even with other people (and animals, so far as animal welfare is concerned) to whom our main moral responsibilities lie, while it may be the case that we should simply treat them properly as required by the demands of justice, of fairness, it is probable that it is sympathy, literally feeling with them, which is going to motivate us to help them (as with a response by thousands to help the starving in Africa, as a result of

seeing their plight on television). I do not think emotional involvement in any way lessens the moral value of response to human need; indeed Hume saw ethical behaviour as stemming from feeling. This is not to lack respect for any who act purely out of motives of justice or, like Kant, duty alone, if there are any such. But is not a concern for justice or fairness itself a matter of feeling, something one needs to care about? Do not children get extremely emotional if they think they are not being treated fairly?

The importance of the hunter to us I think is, as I noted, that he has a motivation for conserving animals in their habitats. Anyone who shares that motivation is going to have a good reason for, for example, not cutting down forests as we did in Britain, although we are so anxious now to persuade people in other parts of the world not to follow our example. The hunter, of course, uses the habitat; he removes from it the animal he kills. But if he is enlightened, though he kills animals he will avoid any danger to the population of the prey: he will conserve the stock. And it is perfectly possible to remove timber from forest without destroying the forest. In both cases rules are being obeyed, and this is a kind of ethics, rules about not being excessive, rules of good husbandry, rules set, in fact, by the nature of the thing that is required (prey or timber or whatever it is).

I find a striking analogy to this in the attitude of a landscape architect, Dame Sylvia Crowe who, in deciding

how to deal with the problem of, say, laying out the land around a power station in the most attractive way, and so as to make the power station least intrusive, studies the lie of the land (even for months) and then follows a course which (she feels) is dictated by the nature of the land. What better example could there be of the following of Pope's advice on laying out a garden?

> Consult the Genius of the Place in all;
> That tells the Waters or to rise, or fall,
> Or helps th'ambitious Hill the heav'ns to scale,
> Or scoops in circling theatres the Vale... (32)

Dame Sylvia's approach seems extraordinarily like that of the artist who feels constrained by the requirements of his art, and of his materials. It involves understanding and appreciation of a system which one falls in with. The approach of the enlightened hunter similarly involves some understanding and appreciation of the system, in this case of an ecosystem, which he falls in with. The ethic does not forbid him to make use of the system; indeed the use is in a way essential, because otherwise the system would not matter to him; it is regarded as a resource, and appreciated as a resource.

There is nothing in this ethic, we may note, about not killing animals, though there may well be something about not hurting them unnecessarily. However, the hunter certainly does not always feel constrained to avoid causing suffering, as in an extraordinary example of an elephant hunter's own record of his leisurely destruction of an elephant, quoted by Carrington and perceptively

analysed by Midgley (33). But contrast this attitude with Corbett, who, having killed a sleeping tiger, though a man-eater, is assailed by regret for having killed him asleep and thus failed to give him a fair chance, and feels an obviously genuine sympathy for the tiger for the pain it has suffered from injury by porcupine quills (see pp 331-332 above).

I do not wish to appear to be saying that one cannot treat nature, or anything else, properly unless one regards it as a physical resource: something which one treats properly only because one gets from it a continuing supply of timber, say, or of dead tigers. This is one reason why I stressed the aesthetic or even spiritual aspect of hunting: for example in that in some degree it regards the country as a resource for spiritual refreshment. It is sad that this aspect can not be enjoyed without being hung on the peg of killing animals. It is precisely this situation, I think, with Izaak Walton, in a an example already noted, or in an article by Lord Hume about the gentle pleasures of fishing. If, like Peter Scott, one can transmute this appreciation into a purely aesthetic and scientific appreciation of the natural world, of course this is preferable. But so often the practical (if violent) purpose - the desire to fish or to shoot - is the motivation producing the understanding of the prey and its habitat which produces or is all part of

the appreciation. What seems essential is to appreciate the "wild" as a resource of some kind: perhaps because you want to photograph or film it, or just wander or backpack or explore there, or birdwatch or mammal-watch or study plants, or just appreciate it in the kind of way that Wordsworth appreciated the wild of the Lake District.

Conservation is an intensely practical business, and no less so because of the fact, as I see it, that it needs to stem from some sort of appreciation which may be aesthetic or even spiritual. One way in which it is practical is that it is the people with power, or with influence, in the countries where the wild areas needing conservation are, that need to appreciate those areas (34). Hence the importance of stressing to them that it is in their interests, and their people's, to conserve their wild areas, whether this is because cropping their indigenous wild animals will be a more economic source of meat than keeping cattle less suited to the area (35), or because this way their forests can continue as a source of timber, but in a controlled way, or because of the wisdom in maintaining animals for hunting or, better, as a tourist attraction, or, even more fundamental, because conserving forests prevents flooding and desertification. This is a realistic approach, and, as enlightened self-interest, is in the spirit of conservation down the ages (even though conservation tended originally not to be for the ordinary man, but exclusively for the privileged few). That is, it is the using of something, and of

appreciating how useful it can be (as it might be with a car or motorbike, or with a work of art or a tradition or expertise to be handed down, as in my earlier examples), but using properly with a real understanding of it, so that it is not misused and especially not destroyed.

Enlightened self-interest can very well be in the interests of future generations, as in the conservation of the Pere David's deer in China, which presumably was just for the Emperors' own enjoyment, but in fact saved the species for the world (36). This is very comparable with the laying out of great parks and gardens in past centuries, now enjoyed by ordinary people who may well never have been foreseen or intended as the beneficiaries. And there is something very disinterested, very public spirited or at least not selfish in any narrow sense, in the planting of slow-growing trees, because it is only future generations who can benefit.

There is as it were a natural logic and a natural ethic of conservation (37). Interestingly, although it is not concerned with the interests of the animals who are killed, yet in as much as the habitat is conserved the interests of all the animals in or benefiting from that habitat are served, even those killed in as much as they have been enabled to live a natural life up to that time. Hunters appreciate the need of animals for places to hide, as well as feed, and are thus likely, I think, to regard other animals as having rights to their necessary food, but on the other hand they have tended not to extend this

understanding to rival predators, weasels and birds of prey. I think a respect for the relationship of all species is very much in line with a true ecological ethic such as an enlightened hunter (such as Corbett) would appreciate. Attempting to make rival predators extinct, in the way gamekeepers have tried with weasels and stoats, or shooting vast "bags" of tigers or any other prey, is not being true to a proper hunting spirit, any more than it is displaying a proper attitude of stewardship.

Keen though I am on the transmuting of hunting appreciation into appreciation without hunting if possible, we should not disregard the help, both of motivation and of specialised knowledge, which hunters (in a wide sense) can provide for the cause of nature conservation. It is fine to say that wildlife should simply be left alone, but this will not stop it being interfered with by developers, by those interested only in a financial profit. Ironically, it is those motivated by a desire to shoot birds who are most likely to protect their areas and ensure their survival.

I want now, in the next chapter, to consider why we should conserve animals in particular.

NOTES TO CHAPTER 11

1. Conservation and its cognates are (according to the Shorter Oxford Dictionary) of Middle English origin (1150-1350), a taking over of the French conserver. The Latin root is servare=to save, protect, etc, and of course preserve is from the same root.

2. To decide whether works of art are strictly objects is not easy. See R. Wollheim, Art and its Objects

(Harmondsworth: Penguin, 1970), pp 20ff and 27ff.

3. Hume, A Treatise of Human Nature Bk III, Pt I, Sect I.

4. Boats may be a better example than cars. Consider this remark: "The satisfaction of having your ship really clean, like the satisfaction of being well-dressed, confers a spiritual calm 'beyond the power even of religion to bestow'." (S.J. Housley, Sailing Made Easy and Comfort in Small Craft (London: Blake's, 1928), p 90.)

5. R.M. Pirsig, Zen and the Art of Motorcycle Maintenance (London: Corgi, 1976), pp 24-26.

6. A. Levin, "Learning the Art of Motorcycle Maintenance and a lot more besides", The Observer, 8 July 1979, p 39.

7. Cf Robert Elliot, "Why preserve species?", Environmental Philosophy, 1980, pp 8-29, espec. p 14 ff, on Stanley Benn's view of works of arts as objects to which we may bear duties.

8. See S.R.L. Clark, "Icons, Sacred Relics, Obsolescent Plant", Journal of Applied Philosophy 3, 2, 1986, pp 201-210.

9. B. Williams, Morality (Penguin, 1973), pp 17, 18.

10. Cf Elliot, op. cit., p 11, on whether we have duties to future people; I think the planting of trees for future generations is a good example of a situation in which those involved certainly sometimes do feel they have such duties.

11. F.M. Brodie, The Devil Drives, A Life of Sir Richard Burton (Harmondsworth: Penguin, 1971), p 18.

12. R. Wollheim, F.H Bradley (Harmondsworth: Penguin, 1969), p 15.

13. J. Young, "Feather-ruffling forest", The Times, 22 July 1987, p 10.

14. C.A. Finsterbusch, Cockfighting all over the World (Hindhead, Surrey: Saiga, 1980).

15. Thomas, op. cit. (p 42, Note 29), p 149; see also E.S. Turner, All Heaven in a Rage (London: 1964).

16. R. Scruton, "Bentham mustn't blight Birkbeck", The Times, 29 July 1986.

17. Andrew Marvell, An Horatian Ode upon Cromwel's Return from Ireland, H. Macdonald (ed), The Poems of Andrew Marvell (London: Routledge and Kegan Paul, 1956), pp 118-121:

> Who, from his private Gardens, where
> He liv'd reserved and austere....
> Could by industrious Valour climbe
> To ruine the great Work of Time...

18. For vestigeal features in dress, and indeed a fascinating analysis of the evolution of military uniforms, see James Laver, British Military Uniforms (Harmondsworth: Penguin, 1948), especially pp 23-26. For how new develoments always in practise seem to be developments of what went before, see the comments on trains and also uniforms in Konrad Lorenz, Behind the Mirror (London: Methuen, 1977) pp 234-236.

R. Dawkins, The Selfish Gene (Oxford: OUP, 1976), p 203 ff. For strong criticism of Dawkins' memes, see M. Midgley, "Gene-juggling", Philosophy 54, 1979, p 456-458.

19. See, for example, W.G. Hoskins, "The fox and the covert", The Listener, 11 May 1978.

20. L. Brown, British Birds of Prey (London: Collins, 1976), p 289 ff.

21. Note, for example, how Levin appreciates the leaves and the grass and the silence of the place, which he does not want to disturb: Leo Tolstoy, Anna Karenin (Harmondsworth: Penguin, 1954), pp 179-182.

22. Jim Corbett, Man-Eaters of Kumaon (Harmondsworth: Penguin, 1955), pp 157-164, a passage which contains marvellous details of how he tracks a tiger, such as the imprint of the tiger's body in grass where the animal has just been lying.

23. See, for example, J. Harrison, A Wealth of Wildfowl (London: Corgi, 1973), pp 9-10 and 165-168 on the involvement of wildfowlers in wetland conservation.

24. David Houston, "Can the Californian Condor survive?", International Zoo News 33/1, 195, Jan/Feb 1986 (reprinted from Oryx, July 1985), pp 5-8.

25. Schomberg, op. cit. (p 21 above), p 14.

26. Shorter Oxford Dictionary, under Conservation.

27. Izaak Walton's The Compleat Angler (Harmondsworth: Penguin, 1939; first pub. 1653) shows plenty of appreciation of nature and of animals (e.g. the trout, p 125), but has revolting accounts of how to prepare fish for livebait (p 148) and, still worse, how to similarly prepare frogs (pp 150-151).

28. P. Scott, The Eye of the Wind (London: Hodder and Stoughton, 1966), pp 102 and 236-237.

29. T. Carroll, Diary of a Fox-hunting Man (London: Hamilton, 1984), espec. p 198; Corbett, op. cit., pp 159-160; G. Barter, "Children and Hunting" in Patrick Moore, Against Hunting (London: Gollancz, 1965), pp 54-65, espec. p 56; another interpretation of hunting honour has been suggested to me: that shooting a sleeping animal is no test of skill, and that recognition of this is what lies at the root of the "fair chance" dictum.

30. See K. Thomas, op cit (p 42, Note 29), p 278; C. Darwin, The Origin of Species (Harmondsworth: Penguin, 1968, first pub. 1859), espec. pp 124-125, on the possible effect of cats, through mice and bees, on the frequency of clover.

G.C. Bompas, Life of Frank Buckland (London: Smith, Elder, 1885), p 409.

Corbett, op. cit., pp 14-15.

31. J. Cherfas, "What price whales?", New Scientist 1511, 5 June 1986, pp 36-39; R. North, Wild Britain (London: Century, 1983), p 178 ff.

32. David Cheal, interview with Dame Sylvia Crowe, She, Oct. 1984, pp 81-83.

Alexander Pope, Epistle to Burlington, l. 57 ff, quoted by M. Miller, "Gardens as works of art: the problem of

uniqueness", British Journal of Aesthetics 26, 3, Summer 1986, p 254.

33. M. Midgley, Animals and Why They Matter (Harmondsworth: Penguin, 1983), p 14 ff.

34. M. Halle, "The World Conservation Strategy - an historical perspective", Symp.zool.Soc.Lond. 54, 1985, pp 241-257.

35. J.D. Skinner, "Wildlife management in practise: conservation of ungulates through protection or utilization", Symp.zool.Soc.Lond. 54, 1985, pp 25-46.

36. Wendt, op. cit. (p 43, Note 36), p 354.

37. See R.S. Downie and E. Telfer, Caring and Curing (London: Methuen, 1980), p 163, on use of "ethics" in the term "professional [medical] ethics", which can be "ordinary morality at its finest", though it can also become mere "codified procedures"; I see a conservational ethic (and even the finer aspects of the ethic of hunting) as akin to the better aspect of medical professional ethics; it may indeed embody codified rules, but to a great extent we need such rules and to feel a respect for them.

Chapter 12

THE VALUE OF ANIMALS

I have tried to establish in chapter 11 that an attitude of stewardship towards all things, in the widest sense, of value is an attitude that we (to a great extent) admire and regard as a moral attitude, and that a concern with conservation stems from, or is at least fully in harmony with, such an attitude of stewardship. But some may accept all this, may accept, in particular, that ecosystems should be conserved, but still want to raise problems with the conserving of selected animal species (1); problems such as the following:

[C1] Vast numbers of living organisms, perhaps 99.9%, of those that have ever existed have already gone extinct. This is not only a natural process; it is an essential part of evolution. Present species, including ourselves, would not exist had millions of others not disappeared. So why regard it as important to save those species which are in the process of going extinct at the moment?

[C2] If it is explained that many recent extinctions or likely ones in the near future are not natural but the result of man's activities, including the human population explosion, it can be asked why such extinctions are not still natural, in that their cause, man, is himself a natural phenomenon, and a product, like all other

organisms, of natural selection.

[C3] In any case very many extinctions face us. Is not any choice between the various animals threatened necessarily arbitrary? What possible valid reason can there be for favouring tigers, say, above tapeworms or tsetse flies?

[C4] And how can man have a moral duty to save a species? To whom would he owe it? Presumably not the species, but how could he owe it either to the individuals of the species, whom, in the very cause of conserving the species, he sometimes has to cull? If the duty is owed to other humans, present or future, can this justify culling either? Is this not like killing animals for mere human convenience?

I accept that it is more important to conserve whole ecosystems; conserving animals is not an alternative, or should not be. But I think it is still worth considering why animals as such are worth conserving:

a) as an additional reason for conserving ecosystems of which all animals like all other organisms form parts;

b) as a reason for trying to save a particular species even if it is not possible or practicable to conserve its habitat and wild population;

c) as a reason for emphasising the importance of not losing even individual species where the ecosystems of which they form part are in fact likely to survive but without these particular animal species (eg the mammoth habitat example mentioned below).

12.1 ANIMALS AS WORKS OF NATURE

I argued earlier that particularly fine or outstanding objects merit respect (even from their owners), and in some ways animals seem interestingly comparable with works of art. I accept that animals are not actually works of art (2). It seems essential to the nature of a work of art that it be made by man; after all, the derivation of "art" is the latin ars, artem = skill. Clearly works of art usually are made, and with skill, though I think it at least arguable that an object's selection alone by an artistically-minded person could qualify it as a work of art, like a gnarled root, or polished pebble, picked up on the shore and displayed on the mantelpiece (or in an exhibition). In this case there would still have been skill exercised; skill in selecting rather than in actually creating the object in question (3).

In any case, the term "work of nature" exists, suggesting that we readily think of natural objects as similar enough to works of art at least to merit such terminological similarity. We might also regard animals as works of God, as in the comment on the hippopotamus (Behemoth) splendidly described in Job 40, vv 15-24. "He is the first of the works of God", or, less appreciatively, by Macaulay on seeing the first hippopotamus to arrive at London Zoo:

> "I have seen the hippo both asleep and awake, and I can assure you that, asleep or awake, he is the ugliest of the works of God" (4).

If we do regard animals as works of God, this presumably is equivalent to regarding them as divine works of art (5). We could perhaps analyse the concept of, for example, a hippopotamus perceived as a divine work of art. If we think of a hippopotamus this way, it is (I suggest) for two reasons:

a) obviously, because we think the animal was in some sense made by God;

b) because the hippo is beautiful enough (or ugly enough, if you are Macaulay) and has unity enough to be thought of as something that could be made by an artist, the divine artist.

Works of art, while not necessarily beautiful or intended to be so, must have some quality that marks them out as worth paying attention to; and similarly I think hippopotamuses do. We would be unlikely to regard a pile of dust as a divine work of art, because the pile of dust lacks beauty, unity and/or other appropriate aesthetic features. If we "subtract" reason a) - i.e., cease to think of the hippo as made by God, we are still left with the aspect of the animal delineated in reason b).

I suggest we do readily think of animals as rather like works of art, and human animals similarly ("What a piece of work is a man.....the beauty of the world! the paragon of animals!.." (6)).

True, animals move around independently, in fact live their own lives, which may seem to disqualify them as

being in the slightest degree comparable to works of art. But a doll's house whose occupants appear to be living actual lives, as in a story by M.R. James, might seem (as well as a source of unexpected moral problems) a fantastically fine work of art, incredibly correct to the last detail. All evolution could seem a divine entertainment, as in God's comment at the end of Mephistopheles' summary of the history of the world at the start of Russell's "A Free Man's Worship": 'it was a good play; I will have it performed again' (7).

Animals "function" aesthetically in another way. They, or rather their genes, are the opportunity for a kind of living sculpture engaged in by the selective breeder. Darwin commented that "Breeders habitually speak of an animal's organisation as something quite plastic, which they can model almost as they please." This can be either for practical reasons, as with our familiar domestic animals - dogs, horses, sheep, pigs, hens, etc - or for amusement or a delight in creating new and ever odder varieties, for example of pigeons - carriers, tumblers, runts, barbs, pouters and many more, all described by Darwin. I am not here approving or disapproving of these activities, except in as much as I would condemn the production by fashion of animals with problems in living properly. My concern here is simply to point out that people do regard animals, when so domesticated, as a kind of material of art, as well as, in the case of the new varieties they produce, as their new

creations. So it is hardly a wild extrapolation from this to regard wild animals as rather like works of art, or at least to view them aesthetically (8).

Taxidermy is another example, well illustrated by Bartlett's work, and how he saw it, "preserving specimens of Nature's most beautiful work", and their display in a museum (as Bartlett's reconstruction of a dodo was displayed at the Crystal Palace) seems to me analogous to the display of pictures in an art gallery (9).

It seems to me that, in view of the fact that animals have been viewed aesthetically since ancient times, and in view of the various remarkable features of animals which in some degree modern science has extended our appreciation of (which I will try to sketch in 12.4), that we are eminently justified in viewing some animal species - such as oryxes or condors - as quite as valuable aesthetically as a great work of man like the pyramids or the Taj Mahal: as something obviously precious that we should conserve, if we possibly can, just in a spirit of stewardship.

12.2 ANIMALS AS TREASURE

Animals, especially impressive ones like tigers or lions, are sometimes compared to or thought of as treasures. This term (if one can forget the patronising or "petting" overtones of it when used of infants or animals thought of as infants) has the advantage of not necessarily referring to something made valuable by the skill or workmanship

involved in its construction, though it can be used like this. Two examples of its use which happen to be to hand arise in a discussion of Henri Rousseau's 1891 tiger painting in a short book on tiger conservation, the other in a Radio Times article about a children's series involving visits to view treasures in museums and starting with a visit to meet "living treasures" (such as a lion cub) at London Zoo (10).

The museum/zoo comparison seems to me a reasonable one. In my own view the prime role of museums should be as a place to keep in safety "treasures" of various kinds (and also of course various interesting objects that it would seem inappropriate to call treasures), two other roles being the display (preferably instructive, and where possible) of the treasures to the public and also their study. (I would thus see an art gallery as a specialised museum.) A zoo, as again a kind of museum, keeps living treasures (11). But it of course may be inappropriate for various reasons to keep and exhibit living treasures, where perfectly appropriate with non-living ones. One problem in keeping living treasures satisfactorily, or even at all, is that some of their quality as living belongs to the part they play in their ecosystem, including their relation to their habitat; another problem is that of course they require a concern for themselves, as living creatures, a concern I will emphasise in 12.5. But I think that some animals can, as individuals, be kept satisfactorily in zoos, as I have considered in 7.4 and

chapters 9 and 10. And, as we will see in 13.2, it is now becoming possible to keep certain animals properly even in terms of populations - to conserve them in the sense of maintaining the captive population as something "alive" in more than one sense, and from which the corresponding wild population may be able to be reinforced or replaced if necessary.

"Conservation", I believe, in a museum context would mean "restorative work". Now the word "preserve" may well seem most appropriate for the museum's role of keeping objects safely, especially in as much as the objects in a museum are not likely to be still used for whatever they were originally, to be preserved, as it were, as "dead" specimens, like flies in amber (see 11.1). We might feel that "preserve" was the word to use of a zoo's work too, because of its suggestion of keeping the living treasures in a virtually dead state, in which in poor zookeeping the animals may well seem metaphorically to be. But with enlightened zookeeping, such as I have tried to examine in chapters 9 and 10, and will look at other aspects of in 13.2, particularly, the word "preserve" in a pejorative sense is not applicable. It might still be used in a zoo context in preference to "conserve", but merely to mark the point that the animals are being maintained out of their natural habitat, or "ex situ", rather than in their natural habitat as in conservation in the strict sense.

12.3 AN INTERLUDE: THE DISPLAY OF ANIMALS AS "NATURAL WORKS OF ART"

My main aim in this chapter is to suggest the special claims that animals have for being conserved. I have discussed how we often regard them as works of nature - as something like works of art - and sometimes as treasures. I am not suggesting that animals are like works of art or treasures to an extent greater than that to which they are unique, i.e. a special phenomenon of their own kind, some features of which I shall note below in 12.4. Before this, however, I want to consider what seems to me an interesting, though minor, aspect of the way in which animals are kept in zoos, and this is the aesthetic aspect.

Clearly we do often regard animals as beautiful, often as magnificent and impressive, sometimes as attractive in other ways. Sometimes we may be unaware of the features that make an animal appeal to us. But let us for a moment consider animals as something like magnificent pictures such as we would display in an art gallery. To display a picture or a sculpture properly is itself an aesthetic matter, requiring judgement about the most effective, tasteful and even, I suggest, respectful, way of displaying it. A picture's frame needs to be appropriate; a picture could be framed in a way that made it look ridiculous, just as it could be hung in a situation so inappropriate as to be insulting to the quality of the picture.

Now it is possible, indeed perhaps highly desirable,

for an art gallery itself to be a work of art, and I think the best case for London Zoo's much criticised elephant and rhino pavilion (see 10.4, pp 292-293) would be to see it as a way of displaying elephants in a manner which does honour to them as magnificent works of nature, like displaying a great master in an art gallery to the best advantage. In an architect's eyes, the building -

"shows a freedom in concept using a sculptural form to reflect the occupants and designed to display them in the most dramatic way. The rough texture of the walls is not unlike that of an elephant's hide. Internally, the timber joists arch overhead like trees in a forest ... giving the appearance of animals standing in bright toplit clearings in a forest" (12).

The aesthetic aim is appropriate and creditable; whether it is achieved is a matter of aesthetic judgement which does not affect the case. But the obvious point to make is surely that the animals' needs should have come first, as is well put by the comment of an anonymous 'distinguished continental zoo director': "What for the roof so high, uh? They think sometimes maybe the elephant is meaning to fly up at night and be roosting?" whom Durrell quotes (13). Of course if the animals' needs could have been met as far as possible, and the aesthetic demands as well, this would have been ideal. One could argue that they have been for, as Eltringham remarks, stables have not needed much change through the centuries and elephants, regarded as domestic animals, perhaps just need a large stable, and as such the elephant house is no worse than one without the towering pinnacles, etc (14). However I want to suggest that even aesthetically speaking something more obviously suited to

the elephants themselves would have been more appropriate, and to show this I want to mention another example, also at London, that of the Lubetkin Penguin Pool.

This, designed some fifty years ago by Berthold Lubetkin, "is certainly a masterpiece... and a work of art..." (15). Apparently it was inspired by the shape of an egg ("one of nature's most perfect shapes" - Lubetkin's comment):

> "here was a single idea.. flawlessly executed, and that somehow possessed, as if in diagrammatic form, all those fundamental principles of design upon which architecture depends".

Significantly the same article remarks that "It was functional, economic and practical, enjoyed by onlookers and penguins alike..." This is significant because it seems that the pool, despite this overwhelming praise, is rather unsuitable for penguins, and in particular is not deep enough to allow proper swimming. Because of the pool's architectural merit, some thousands of pounds have been granted to restore it to its original splendour. But ironically there will be no question, despite the money available, of, for example, the pool's being deepened in the interests of the penguins. This is not possible because the pool is protected by a conservation order. I approve of a system under which something of special architectural merit can have such protection because, as I have suggested, I think that fine works of art are clear examples of items which should be regarded as belonging, in the final instance, to the whole community or to

mankind, and even protected from their owners if necessary (see 11.2). But what is interesting in this case is the pool's being flawed as an artificial environment for penguins. The architectural critic I have quoted, Stephen Gardiner, accepts that part of the pool's perfection is its being "functional" and that it is "enjoyed" by the penguins. It seems to me that in as much as this is not the case (and an ethologist, not an architect, is the person who can judge this), then it is not merely that the pool's suitability for penguins is flawed and that therefore, despite its artistic merit, it ought to be improved because the needs of penguins on welfare grounds should be recognised as completely superseding any aesthetic requirements. It is that the pool, being a functional piece of architecture, is itself aesthetically flawed in as much as it is failing to meet biological requirements. One odd consequence of this fact, if it is such, may seem to be that the quality of a functional work of art must then change through time, as (in the case of architecture for animals) we learn more of their requirements. But I think it is rather that, with such a work of art, a final judgement upon its quality must wait upon the acquisition of the fullest understanding of the biological factors involved. And in as much as we never will reach perfect understanding of these, so we will never be in a position to give a final judgement upon such a work of art's merit (16).

I am suggesting that, at least in theory, there

should be no conflict between designing a building - or equally an enclosure, of course - for an animal species on biological and on aesthetic requirements, because the aesthetic requirements must include the biological requirements, first and foremost, and perhaps other non-aesthetic requirements such as the enclosure's not giving misleading messages to the public about how it should regard the animal. However, I think the challenge to the zoo architect or designer becomes an even more interesting one if he appreciates the need to meet the biological needs of the animal (as well as other important, non-biological requirements). For all artists work under restrictions, under rules, and part of the artistic achievement is the way the artist solves the problems of those restrictions, achieves so much within them.

A last aesthetic point is that even works of art as such, like Henry Moore's sculpture, King and Queen, or many of the works of art in the Burrell Collection at Glasgow, have been presumed to be set off to advantage, or set off best, by a background of the natural world, such as trees and grass. It seems more than likely that for most animals a really successful (aesthetically) enclosure or building is going to need to be natural or incorporate a natural area. The message for zoo architects, on aesthetic grounds alone, seems clear.

12.4 ANIMALS AS ANIMALS

I have considered animals as analogous to works of art (see 12.1) and as analogous to treasures (see 12.2). Now I wish to note six features of animals that are unique to living organisms and two more that are unique to animals, and to consider these both as a guide to why animals merit conservation, and as a guide in some degree to how they should be conserved or cared for. The last two features I shall discuss in the next section, 12.5.

1. They are highly complex and intricate mechanisms, as noted by W.S. Gilbert in these words:

> "I don't think I ever wittingly stepped on a black-beetle. The mechanism of life is so wonderful that I shrink from stopping its action. To tread on a black-beetle would be to me like crushing a watch of complex and exquisite workmanship" (17).

Now that even just one cell, of the millions that make up a higher organism, can be described as "the most completely automated factory we know...[with] thousands of reactions and hundreds of reaction sequences" occurring within it (18), Gilbert's response of wonder at a beetle is even more appropriate than it was then. Here, as in the earlier sections of this chapter, we are still, as it were, contemplating an individual organism as we might contemplate a picture or sculpture; but even viewed thus, how much more bewilderingly complex, and beautiful in its intricacy, than any work of art; and of course, for that matter, how much more intricate, as a "working model", even than any robot (19).

2. Animals have a close relationship to their

environments, being to different degrees anatomically, physiologically and behaviourally (20) adapted to them, and forming, along with all the other living beings and nonliving materials of those environments, different ecosystems. Thus every animal is not only in itself an enormously complex mechanism; it is part of a complex system, or many systems, according to how we choose to analyse the situation.

3. Each animal is born or hatches (or buds off in the case of some coelenterates) and, after a limited length of life, dies. So animals are constantly being replaced; all seem part of a cycle of life. (See Chapter 16 below.)

Between "birth" and death animals change; they develop (a process which starts normally, of course, from fertilisation). Lengths of life vary a great deal, corresponding very roughly with an animal's size. We tend to feel more respect for an animal when it is very long-lived, and similarly for a plant, such as one of the great trees. There is conservational sense in this, since long-lived organisms are not readily replaced.

4. Animals may either be seen as coming in "sets" that we call species, of very similar though not identical specimens, or, probably more correctly, as not only individuals themselves but also part of species which are themselves strictly individuals with a history and an eventual end (21). Animals also come in an indefinite number of sets (our other taxa) of increasing size or generality. Whether the species is a set or an individual,

an individual animal such as a tiger does not in a way require the protection that a picture does, because the latter is unique where the tiger is not; what is unique is the species, and this seems not only comparable with a human work of art but incomparably more valuable in numerous respects (such as 1) and 2) above) (22). The tiger (and every other species) is a little like a piece of music, such as a symphony, which in fact exists in many (transitory) copies, the actual performances.

At the same time the individual tiger is of course different from every other tiger, and, just as the symphony might be said to exist only in its performances, so the tiger species exists only in individual tigers. So although every individual (conservationally speaking) is in a sense dispensable, this is only true in some degree. Some individual tigers will be more important than others.

Related species, or related genera and so on, are themselves rather like a set of musical variations on a theme: they can be appreciated in (in some degree only of course) the same way. I am less reluctant to tender analogies between music and organisms in that others have suggested them before me, for example the distinguished anatomist Sir Gavin de Beer, Gregory Bateson and even the great, though appallingly cruel, physiologist Claude Bernard (23). The variations here would be not only anatomical but behavioral.

5. Many features of animals are controlled by their genes, essentially paired sets of highly variable complex

molecules, duplicated in every one of an organism's constituent cells, and which are "shuffled" in the process of formation of every egg and sperm and occasionally some of them altered chemically, so that every new organism has slightly different sets from its parents. It is possible to see all organisms as devices by which their genes survive and produce identical copies of themselves, though the validity of this vision of living things, even explicitly as a merely biological vision, has been challenged (24). This feature of animals is closely connected with the next.

6. Animals also evolve, of course, or rather are part of populations or gene-pools that evolve. This gives the species, considered as a work of art, a time dimension: it develops through millions of years, and of course the fact it changes, and will probably eventually disappear (or be transmuted into something else) is all part of its development (25). This could again be a reason for not feeling we had to preserve every individual member of a species, but at the same time feeling reluctant to let the species itself go extinct. It is the long term (over millions of years) development of species ("vaster than empires, and more slow..."), that does seem one of the reasons for our being reluctant to see them disappear. Individual animals, and especially individual plants, with very long life-spans equally command our respect.

7. Certain animals are in many ways persons, though we tend to restrict the concept of personhood to other

humans. Some have personal relations with us, and many must do in some degree with each other (see 4.3 above). This feature of animals is closely conected with the next.

8. Animals are sentient, and many of them must have consciousness or awareness; many must be able to suffer and to experience pleasure (see chapter 4).

12.5 WHY ANIMALS MERIT "DOUBLE RESPECT"

These last two features of animals are of particular importance, and it is of course significant that they are the only two of the eight features we have listed which apply exclusively to animals rather than other living organisms. They are enormously important because they are not merely reasons why animals are of value to us as remarkable "furniture" of our world; they are reasons why animals are of value to themselves. I would agree with Elliot (in a rather academic speculation) that the absolutely last person surviving in the universe would not be doing harm in destroying, before he himself expired, any art galleries containing old masters (26). But if animals remained, he would have no right to harm them; his disappearance would not affect their value to themselves. They could continue to live their own lives.

I would make four comments on the last two features, especially the second of them, for I do not suggest an animal has to be regardable as a person to be of value to itself:

a) These features are another aspect of their "richness"

and complexity; they are thus two more reasons for conserving them.

b) It can give us pleasure or satisfaction to know our world, or some particular part of it, is shared by nonhuman beings who are themselves not only living but having experiences, including experiencing various satisfactions or pleasures.

c) But also, because their lives therefore have a positive value to themselves, these are reasons for conserving them: we should conserve them for their sakes.

d) It is the sentience of animals, especially their capacity for suffering and positive pleasure, and the fact that some of them are persons (or virtual persons), that is the reason why we should regard them as having rights (see chapters 4 and 5); why, that is, we should respect them on welfare grounds.

So at this point, I suggest, reasons for conserving animals and reasons for regarding them as having rights coalesce. Thus we should have for at least higher animals, any we have reason to regard as being conscious (not just self-conscious), a "double respect":

a) respect for them as fine and remarkable "things", as I have discussed in the previous chapter and this one;

b) respect for them as sentient beings, who can both suffer and experience pleasure.

This would be my reply to Rodman when, while appreciating Singer's demand that animals require our concern because they can (in particular) suffer, he

expresses his dissatisfaction with the implication of Singer's view that we should feel no concern for non-sentient beings and other parts of the environment (27). Rodman felt a concern for an area of no great ecological or other obvious importance (just "sagebrush, scrub oak, and cactus") and would have still wanted to conserve it even if there hadn't also turned out to be dusky-footed woodrats (28). I see that Rodman may not be satisfied by my suggestion, for he finds it "odd to think that the plants have value only for the happiness of the dusky-footed woodrats", and I, while I would not grant the plants value only because of their usefulness to woodrats, would hesitate to grant them value in a universe occupied by no sentient beings. But I have no particular urge to deny them even that value. I am rather concerned to argue that they should certainly be regarded as having a value for humans and animals, a value because of their beauty and complexity as well as their usefulness as food, etc, but that the woodrats, in addition to having a value to humans as things of beauty and complexity (and no doubt, if incidentally, of other usefulness also), have a value for themselves because of their sentience, etc, and that we should conserve them for their sake (at least unless there are overwhelming considerations preventing this) and (whatever other considerations there may be) treat them as humanely as possible.

Rodman at least wants to conserve the woodrats (along with the sagebrush, etc), but Hollands, as an animal

welfarist, can actually contemplate the likely extinction of whales with equanimity, seeing this as a loss merely to us and a happy fate for them in being spared their vile treatment at the hands of humans (29). We must, I think, grant a positive value to the lives of whales (and animals far further down the evolutionary ladder than whales) on at least two grounds. One is that, if we do not, and we are concerned, as of course Clive Hollands is very actively concerned, for the prevention of suffering in animals then the most logical step is to painlessly destroy as many of them as possible (see p 111 above, and Godlovitch, op. cit. (p 128, Note 23)). The other is that we must give a positive value to animals' lives for the same kind of reason that we give a positive value to the lives of humans: we should, in both cases, grant that their lives are of value to themselves.

So what of the four problems with which I began this chapter (pp 345–346 above)? To [C4] I would say that, while extinctions are natural and indeed essential to evolution, this is no more reason for not regretting the occurrence of any extinction before our eyes than it would be for not regretting human extinction, were this confronting us. It is in any case unlikely that any wholly natural extinctions of megavertebrates (see 13.2 below) are finally occurring (to our knowledge) in our lifetimes, simply because of the long-scale nature of such occurrences: they happen, one might say, on an enormously greater time scale than that on which we measure human

activities.

I meant by "wholly natural extinctions" ones in which man is not involved. To problem [C2], which notes that man himself is natural, and therefore all his activities, including his near-crowding out of other large animal species, are natural too, I would agree that in a sense all this is true. But why should man's plea that his selfish activities are a result partly of human nature - which, as I suggested in chapter 6, I think is indeed the case - be any moral defence? The fact that we can recognise and discuss a tendency in ourselves and other humans suggests that we have some ability to control that tendency. And we had in any case better try our hardest to control our selfish (and our violent) tendencies else we are likely, of course, to be dooming ourselves as well as, and partly as a result of our treatment of, other animal (and plant) species.

To [C3], the argument that any choice between species is arbitrary, I would reply that of course human values must be involved in any choices of animals to save from extinction, but that need not make any such choice arbitrary. It is essential to conservation to select, not try to conserve everything (see 11.1, p 316 ff), and we can and certainly do in fact have strong preferences on aesthetic and other grounds for certain species (a point well made recently by Tudge (30)), even though it is also true (as I suggested in 11.4, point 1) that every kind of animal is itself a "mechanism" of (as it were) "exquisite

workmanship". Many invertebrate species still are, as it happens, rather like each other. I will return to this matter in 13.8 below.

To [C4], the question of to whom a duty to save a species is owed, I reply that it is owed to other humans and in some degree also to the individuals of the species concerned (31). While culling is admittedly to a great extent carried out for human convenience and gain, to some extent at least it is a necessary evil: we can genuinely cull red deer for the sake of the other deer - not, admittedly, for the sake of the individuals culled. I shall look at culling further in 13.4 below.

NOTES TO CHAPTER 12

1. E.g., the suggestion of John Burton, executive secretary of the Fauna and Flora Preservation Society, that money should not be wasted on captive breeding of the giant panda as it is a "post-pleistocene relic" doomed to extinction like the mammoth (The Times, 17 Oct 1981, p 3).
2. As Flint Schier has emphasised to me.
3. See Miller, op. cit. (p 343 above, Note 32), p 255, for "further weakened version" of the notion of the artist as "fully responsible for every aspect of the final work", i.e. that "the artist defines the work as art by selecting or accepting certain pre-existing features of an object".
4. Blunt, op. cit. (p 43 above, Note 44), p 111.
5. I am grateful to Stephen Clark for pointing out to me that it is doubtful if God could exercise skill, "a way of organising means to ends in submission to established natural laws... God needs no secondary causes and is subject to no external laws..." But perhaps it is the act of intentional creation, rather than the exercise of skill, that makes a work of art such. And this could apply to God as much as to man.
6. Hamlet II, 2, 303; T.J.B. Spence, editor of the New Penguin edition (Shakespeare, Hamlet (Harmondsworth: Penguin, 1980), p 255), gives "masterpiece" as the meaning of "piece of work".
7. Bertrand Russell, Mysticism and Logic (London: Penguin, 1953), p 51.

8. C. Darwin, The Origin of Species (Harmondsworth: Penguin, 1968), pp 90 (on "animal's organisation") and 82 ff (on pigeons); note also p 91: "Not one man in a thousand has accuracy of eye and judgement sufficient to become an eminent breeder."
See M.W. Fox, Behaviour of Wolves, Dogs and related Canids (London: Cape, 1971), pp 204-205 on "extreme selection for genetic anomalies" in dogs.
9. Street, op. cit. (p 44 above, Note 50), p 53; Bartlett, op. cit. (p 96 above, Note 57), p 4.
10. G. Mountfort, Tigers (Newton Abbott: David and Charles, 1973), p 79; Radio Times, 3-9 Jan 1987, p 87.
11. Some would regard my view of the museum role as old-fashioned, there being a tendency in recent years to banish actual animal specimens to the basement and replace them by manufactured working models illustrating newer biological understanding (as at the British Museum (Natural History)).
12. Patricia Wylson ARIBA, "The London Zoo", Biologist 31, 2, April 1984, p 107.
13. G. Durrell, The Stationary Ark (London: Collins/Fontana, 1977), pp 28 and 29.
14. Keith Eltringham, "Elephants in Zoos", Biologist 31, 2, April 1984, p 108-111.
15. Stephen Gardiner, "Pick up a penguin, Lubetkin's Penguin Pool at London Zoo", The Observer, 15 March 1987.
16. Delays in construction of up-to-date animal accommodation because of conservation orders on old animal houses, or even because of what would seem an over-enthusiasm by "civic conservation groups" to "retain the late Victorian features" of unlisted buildings, are not new to London Zoo, or other older zoos like the Bronx Zoo, New York (e.g. "Objectors may sink zoo's 2m [pounds] aquarium", The Times, 29 July 1985).
17. Hesketh Pearson, Gilbert and Sullivan (Harmondsworth: Penguin, 1950), p 128.
18. S. Rose, The Chemistry of Life (Harmondsworth: Penguin, 1966), pp 188 and 190.
19. I do not suggest that beauty consists merely in complexity, or that works of art have not of course a range of features which would not be echoed in a living organism.
20. Only animals can be behaviourally adapted (with the exception of some unicellular or acellular organisms which may be classifiable as plants while as mobile as some protozoans).
To recognise animals' adaptations to their habitats is not to deny that some of them can adapt very well to various other conditions or situations (see 7.4).
21. See D.L Hull, "A Matter of Individuality", Philosophy of Science 45, 1978, pp 335-360; S.R.L. Clark, "Is humanity a natural kind?" (forthcoming).
22. It does seem to reflect extraordinarily on our sense of relative values that a sum of half a million pounds was

easily found to purchase Henri Rousseau's famous painting of a most untiger-like tiger (though in a magnificent jungle) while a similar sum was desperately needed, but not easily forthcoming, to save the tiger species itself from the danger of extinction (Mountfort, op. cit., p 79).

23. G. de Beer, Homology, An Unsolved Problem (Oxford: OUP, 1971), p 8: "The limb is a pattern which has been transposed over the long axis of the vertebrate body, like a tune that can be transposed over the keys..."
G. Bateson, Mind and Nature, A necessary unity (London: Collins/Fontana, 1980), p 18: "The anatomy of the crab is repetitive and rhythmical. It is, like music, repetitive with modulation."
J. Vyvyan, In Pity and in Anger (London: Michael Joseph, 1969), p 47: "[Bernard] writes beautifully of the harmony of a living organism, and describes it as the consequence of a reciprocal harmony between all its parts so delicate that to disturb one element is to produce a perturbation in the whole."

24. I am trying to give the roughest summary of an extraordinary aspect of living things which sheds light on practically all aspects of animal behaviour, particularly, and which is beautifully expounded (in my view) in Dawkins, op. cit. (p 343 above, Note 18) (though Dawkins' account has been challenged as seriously misleading by Midgley, op. cit. (p 343 above, Note 18)).

25. Hull, op. cit. and Clark, op. cit.

26. R. Elliot, "Why Conserve Species?", Environmental Philosophy, 1980, pp 8-29, espec. p 16 ff.

27. J. Rodman, "The Liberation of Nature?", Inquiry 20, Spring 1977, pp 83-145.

28. Ibid, p 84.

29. Clive Hollands, "Animal Welfare Year in Retrospect" in D. Paterson and R.D. Ryder (eds), Animals' Rights - a Symposium (Fontwell: Centaur, 1979), p 205; J.J.C. Smart, on the other hand, recognises that part of the objection to killing whales is their being deprived of the future happiness they would have experienced (Ethics, Persuasion and Truth (London: Routledge and Kegan Paul, 1984), p 155, note 15).

30. C. Tudge, "Rembrandts in the sky", New Scientist 116, 1580, 1 Oct 1987, pp 74-75.

31. See A.S. Gunn, "Why Should We Care about Rare Species?", Environmental Ethics Vol 2, Spring 1980, pp 17-37, espec. pp 34-37.

Chapter 13

ZOOS AND CONSERVATION

Having I hope established, in the last two chapters, that both the conservation of whole ecosystems and of animal species in particular may properly be regarded as moral matters, I want now to examine the conservational role of zoos. I will first state some of the arguments against zoos as aiders of conservation.

13.1 OBJECTIONS TO ZOOS' CONSERVATIONAL ROLE

[Z1] Animal conservation is basically a matter of protecting habitats, which zoos as such obviously do not do. This is important because –

a) real animals living their natural lives can only be conserved in their natural habitats;

b) by protecting habitats, e.g. tropical rain forest, we protect vast numbers of animal and plant species, not just those attractive to humans, the so-called "charismatic megavertebrates", that zoos go in for;

c) animals in zoos are not "real" animals in the fullest sense, certainly not truly wild animals (the converse of a) above).

[Z2] But zoos' work is not only thus irrelevant to true conservation; it is positively harmful conservationally because it involves the removal of specimens from their

natural habitats, which process must in varying degrees damage those habitats, indeed even endanger the survival of the species removed (1).

[Z3] Even if zoos can save certain species, it is not at all certain, for a variety of reasons, that they can be reintroduced successfully to the wild (2).

[Z4] Where they can not be successfully reintroduced, it is doubtful if such saving - to live a life of perpetual captivity - is worthwhile, or kind to the animals concerned. It might have been kinder to let them "go extinct gracefully" (3).

[Z5] In any case, most of the animals kept and bred in zoos are not endangered; the captive breeding for conservation that is going on is minimal (4).

[Z6] Zoos are not in fact very good at breeding endangered species (5).

[Z7] Saving an animal by captive breeding is vastly expensive. The thousands of pounds which it will cost to save Siberian tigers, say, by captive breeding would achieve far more if used to conserve the appropriate habitat; it in particular would save far more species (as in [Z1b)] above) (6).

[Z8] Breeding of endangered species is better done in "large-scale breeding centres" (7).

[Z9] Conservation in zoos distracts attention from the much more important conservation of habitats; we are giving the wrong impression, that species and not habitats are what matter (8).

[Z10] Conservation in zoos, in as much as it is successful, may have the unfortunate effect of making people think that is all that matters; that there is no need to save habitats because zoos are saving the actual animals (9).

[Z11] Conservation so far as zoos is concerned is merely a bandwagon they are seeking to jump on to justify themselves now that their practises are challenged (10).

I am not intending to attempt to answer these questions in order, but I hope that answers to most of them will emerge in the course of my account. My chapter on Education in Zoos will also be relevant to some of these questions.

13.2 CONSERVATIONAL CAPTIVE BREEDING

Obviously the most desirable thing is to conserve animals by conserving their habitats, for the reason given in [Z1]b) above, and to some extent the reasons given in [Z1]a) and [Z1]c) also. But with many habitats under threat it makes sense to breed some of the animals in captivity or "ex situ" for extra security. We then know that the species will continue in existence, whatever the situation in the wild, and we are ensuring at least the possibility of reintroducing animals either to replace an extinct wild population or to strengthen a diminishing one. Threats occur especially to large animals, which tend to disappear long before their habitat suffers severe damage. For example, no mammoths remain, though much

mammoth habitat still does (11). Predators, such as cats, at the top of food chains tend to be particularly threatened also. Often the threat to the wild habitat is direct attack from man, as in the case of the Arabian oryx, the Californian condor, and to some extent gorillas (12). Many of the countries where megavertebrates happen to live are unstable, with some perennial danger of revolution. In many cases wild populations of megavertebrates - e.g. of black rhinoceroses - have become split up into pockets, so that it is necessary to manage them in the wild. But in such a case as the oryx example, there was no way the natural habitat could be made safe in the first instance.

Suppose in any particular case a habitat cannot be protected; why is it pointless to attempt to rescue any particular species which are going otherwise to be lost too, especially when there is a chance of being able to reintroduce them to a protected habitat in the future (13)? In view of species' analogies with works of art, I suggest an analogy between the habitat and an art gallery. If the National Gallery is burning down, we do not immediately accept the sad loss of all its paintings. We try to rescue the best ones quickly. This seems the obvious course with outstanding species similarly, if we assume, indeed, they can survive in zoos (which I have already discussed - see 7.4, and chapters 9 and 10). That certain species strike us as outstanding, the cases of the oryx and the condor seem to me clear illustration. This in

no way devalues any species we cannot rescue. If we cannot save all, this is no reason for not saving any. Of course, if we can save the habitat and thus save all the species that is the best course; no-one is denying it.

So far as the claim that zoos are actually damaging wild populations by removing animals from them is concerned, I do not think this is still the case, at least to any appreciable extent, or with any reputable zoos (14). Any capture of animals in the wild and their ensuing transport is now subject to the CITES regulations, in the drawing up of which zoos' representatives (notably Dr Michael Brambell, Director of Chester Zoo) have themselves been involved (15). Of course rules can be broken, and nowhere more probably than in the case of those covering trade in animals, and it may be also that certain animals are not classed as rare which should be. The fact remains that by and large the removing of endangered animals from the wild for zoos should not now be occurring; to the extent that it is, it is of course to be condemned. There is still room no doubt for strengthening of the regulations preventing trade in endangered animals, and certainly room for a great deal more enforcement of the regulations, but this has, I think, very little to do with zoos; it is to do with private collectors (16).

Obviously the situation was very different a few years ago. Of course the appalling situation described in Domalain's The Animal Connection, or occurrences such as the killing of ape mothers (and other adults) to obtain

their young are indefensible (17). But that it is unjustified to accuse reputable zoos (18), indeed any British zoos, of continuing to obtain gorillas in the old, barbaric way is shown by the recent criticism of John Aspinall, despite the exemplary quality of Howletts' gorilla facilities, for purchasing three young gorillas (perhaps to save their lives) against the advice of CITES and the Nature Conservancy Council. The point is that the criticism was from the co-ordinator of the American Species Survival Plan and from an adviser to the British gorilla breeding panel, i.e. both zoo organisations (19). Mary Midgley criticises zoos for purchasing gorillas in the course of her discussion of Marian Mensink's New Scientist account of an unsuccessful attempt to reintroduce a gorilla to the wild (20). The difficulties of reintroduction are indeed important, but Mensink says nothing of the gorilla's having come from a zoo, so her account is no evidence of zoos' buying gorillas from dealers. Certainly, animals should today not normally be taken from the wild at all, unless for some reason there is an "excess" of them or there is a serious conservational case for taking them, and if they are it should normally be by properly organised expeditions, who can ensure that the "right" individuals are being removed - i.e. individuals from a species whose collection can be justified, and individuals whom the population in question can stand the loss of, and also that the animals are caught and transported as

humanely as possible (21). I think [Z2] above (p 369) is satisfactorily answered. I return to the problem of capturing and trading in chapter 17.

We are moving into a new era as far as captive breeding is concerned, in that it is now becoming possible for a whole captive population to be managed as a whole, a development spearheaded by the International Species Inventory System (ISIS) in America and soon to be supplemented by a central database in Britain (22). Such develoments are possible because of relatively new understanding of population genetics as well of course as computer technology. Stud books which now exist for many endangered species, and the various inter-zoo committees for various species, and arrangements thus readily made for non-commercial moves between zoos, are all steps towards the integration of different animal collections (23).

It is now reckoned that a population of, say, 50 breeding animals in the very short term, or 500 in the very long term, if managed as a whole, is enough to avoid inbreeding and to ensure the survival of a gene pool substantially the same as the wild gene pool of the species in question; to ensure, that is, the continuance of nearly as much variation between individuals as would occur in the wild population (24). This means that there is every chance that animals from such a captive population will in the future, if reintroduced to the wild, have the genetic capacity to respond to changes in

the environment in the way that a naturally evolving population does. Thus, it seems to me, we can regard such captive breeding, where we are talking about the careful genetic management of a large enough captive population, as in a real sense close to "true" conservation. Although the population will of course not be in its actual wild habitat, it will be very close to being a natural population genetically, so it will be a "living", developing thing, very different from something in a merely preserved state such as we think of as being preserved in a museum (see 11.1). And also its members will be ready, because of their genetic makeup, for reintroduction to the wild, able to adapt to the natural environment and become in the fullest sense members of a wild population again.

While the total captive population should be managed as a whole, it is at the same time desirable that that population should be split up among various collections, because this acts as a safeguard against the spread of infection as well as being genetically advantageous (provided each separate population is of a certain minimum size) (25). Two possible drawbacks strike me. One is the extent to which pairing of animals needs to be managed, a point that Midgley rightly emphasises (26). But this is hardly more in a new centrally organised system than is necessary anyway in any individual zoo. And in any case the individuals concerned, even though they are subject to a system of "arranged marriages" (which incidentally,

while – speaking of humans – we do not care for it in the west, seems to be an integral part of long surviving eastern cultures), are still free to respond or not as they choose to different partners, and a great deal more free than in many modern farming systems. Again, mating partners have to be arranged in all selective breeding. If we accept this, and no-one who keeps a pedigree dog, for example, is really in a position to condemn it, then I do not see that it is overwhelmingly objectionable with animals in zoos, though it may well be considerably more difficult to implement (27). The other drawback is the need for transport of animals between zoos. Clearly it is necessary here for zoos to exercise the fullest degree of care, and perhaps to be regulated very rigorously, but at least it is not a case here usually of large groups of animals being moved en bloc, and the very value of particular individual animals – i.e. monetary as well as otherwise – as well as unavoidable recognition of their various special requirements, should encourage high standards (28).

While some zoos are much larger, and some are much better and more important, than others (probably though not necessarily the same ones in all three cases), the gradual introduction of the integrated management of captive populations means that smaller zoos will have a useful role to play, provided they can bring themselves to co-operate, and accept the need for computerised records accessible to other zoos, and for the following of

instructions which may even be sometimes to cease breeding from favourite and trusty animals. Obviously this is not easy, as Mary Midgley rightly emphasises, but as a partly computerised integrated management is altering the situation, and making it perfectly possible for small zoos to be part of a larger system, she seems to be overstating her case in saying "Most zoos are quite unable to contribute effectively to [serious conservation]" (29). Only time will tell, and it is up to "most zoos" to prove her wrong.

13.3 BREEDING TECHNOLOGY

Other breeding technology, such as the development of sperm and egg storage, fertilisation in vitro, embryo transplantation and the like, can all be seen as part of a total armoury of weapons which it is good to have available if necessary (30). It seems to me a certain parallel can be drawn with humans, in that such methods as artificial insemination, stimulation of ovulation by hormone injection and so on, are methods used (if at all) when natural methods have failed: similarly we would only use such methods in captive breeding when natural methods are ineffective or unavailable (e.g. an attempt to stimulate ovulation in a lone female Komodo dragon at San Diego and impregnate her with stored sperm from a now dead male (31)). I admit that the two cases are not an exact parallel in that research into artificial breeding involves, in varying degrees, experimentation on animals

which are not themselves needing assistance as humans seeking medical or other technological help would be. But it does seem to me that such research can be justified by its serious purpose, provided of course that it does not involve serious discomfort or worse for the animals concerned. Its spirit can reasonably be seen as a wish to leave no stone unturned in having all possible knowledge and every possible technical aid available for any particular need, should it occur, in the sphere of captive breeding for conservation. The problems are manmade. It seems to me responsible that we should arm ourselves in all ways possible to try to solve them.

I think I understand Mary Midgley's distrust of an overdose of faith in technology to solve all problems: no "technical fix", she feels, is going to be without "socially disturbing consequences" (32). But I wonder if even this is so. Foose and others foresee a combined system of wild and captive populations where the latter can be used to strengthen the former, perhaps with "reproductuve technology" being used to avoid disrupting natural populations (e.g. introducing sperm or embryos "into animals already resident in the natural habitat") (33). Such interference with wild populations may seem distasteful - I can imagine the critic saying "It's bad enough their messing about with their captive animals; can't they leave the wild ones alone?" - but already some degree of management is probably essential for almost any population of large animals. If an increased degree of

technological manipulation is going to help to solve the problems which are likely to face us as pressure on the wild increases still further in coming years, then it is irresponsible of us not to develop it now if we can. It is irresponsible not to manage if managing is necessary and we think we are capable of it, and I think that technological manipulation aimed at good management, aimed at conservation, is therefore acceptable and its development creditable. I agree with Midgley that an example of breeding technology she gives - human surrogate mothers for chimpanzees - is bizarre; in fact I think it is ludicrous; but the fact scientists and technologists can sometimes "go overboard" does not mean they can not also often acquire very real understanding and come up with real solutions. Problems often can be solved, even problems which involve animal behaviour, and upbringing, and fitting into social groups, even, perhaps, the need not to become too adjusted to captivity (which I agree is a particularly tricky problem for zoos conservationally); social behaviour, and relations between individuals, are subject matter for science, just as much as ova, sperm and embryos, and how to manipulate them (34). (This is not to say that I think all scientific developments, e.g. the creation of new species by direct genetic manipulation, or experimentation on human embryos, is necessarily acceptable. I think the maintenance of the natural world and its natural occupants by, if necessary, technological means is a different matter.)

13.4 CULLING

There are problems here, including moral ones, such as the need, for example, for zoos to practise a careful "natural selection", as far as the best scientific expertise available can direct it, which is bound sometimes to require killing animals. This is something zoos are reluctant to do, and if they do, to talk about, for public relations reasons, illustrated perfectly by a popular newspaper report of culling at Whipsnade (35). The report treated the incident as if it were shocking that captive animals should be killed because of excess numbers, whereas unless zoos can effectively prevent successful breeding by some other method, which is presumably very often not practical, killing of certain animals is virtually essential. Jamieson sensibly recognises this (36), but North who, unlike the Daily Express, should know better, speaks of captive-bred animals being "butchered" (37). If our objection to any culling whatever is such that we consider it makes the whole practise of captivity unacceptable, then we must surely, to be consistent, equally condemn the allowing of red deer to roam (comparatively) free in Scotland. For equally, in the absence of natural predators, it is impossible to avoid the need to cull (38). Besides, it is hardly open at least to non-vegetarians to regard the humane killing of captive-bred wild animals as morally wrong but the slaughter of cattle and pigs as acceptable.

Many working animals, such as greyhounds, are in fact killed at the end of their working lives, as was the practice in the fifteenth century, as Dame Juliana Berners tells us in her poem "The Properties of a Good Greyhound":

> ... The ninth year cart saddle,
> And when he is comen to that year
> Have him to the tanner,
> For the best hound that ever bitch had
> At nine year he is full bad. (39)

I am not advocating such positively heartless treatment of greyhounds, but it seems unreasonable to bring the accusation of occasional killing of their animals against zoos as if it were a particularly heinous crime, instead of an occasional regrettable necessity, of course to be carried out humanely if at all. It is worth adding that the killing of surplus animals is taken for granted by both farmers and "fancy" breeders (40).

The introduction of centralised breeding management is not going to make a radical difference, but it will provide a second reason why some killing is in practise necessary. All such killing I would regard as a necessary evil.

I would agree with Regan that it is a misuse of the term "euthanasia" (which he discusses carefully and in detail) to use it for other than the humane killing of an animal in its own interests (41). As he says, this is not to condemn other killing which may be necessary, but merely to distinguish cases which are indeed different. I fear that such a plea will however be ignored, for it is

clearly convenient to vets and others to use "euthanasia" for the humane killings they have to perform, e.g. by the request of dog owners who wish to be rid of their dog for other than concern for its own interests. The extension of the term "euthanasia" to all such killings in fact creates a need for a new term for what "euthanasia", strictly used, refers to.

The use of the term "culling", as also of course the practise of culling, could be challenged. One could object to the use of "cull", and likewise such a term as "crop", of animal killing because of the implication thereby that such killing of the surplus or dispensable members of a population is as acceptable, as unobjectionable, as the destroying of plants. It ought not to be so acceptable, in my view, because, as we have seen, animals are aware and have lives to lead as we do, whereas presumably we are right to feel that whatever we do to plants is at least of no concern to the plants. It is because of this obvious, but vastly important, difference between animals and plants that I would regard culling animals, but not culling plants, as (at best) a necessary evil. As I have said, I accept that much culling is for human gain, but the sort of culling we are speaking of with regard to zoos is culling out of virtual necessity, given, certainly, that we have zoos, which is not itself a necessity. If that is accepted, then it seems to me reasonable, and not unjustifiably euphemistic, to use a particular term, "cull", for a particular kind of killing, done out of

virtual necessity and humanely.

Maureen Duffy strongly opposes the use of culling (the activity, not the term, and in general, not by zoos particularly), and for a reason which I must respect: that we are making an unjustifiable distinction between humans and animals in adopting so readily the solution of culling for problems of over-expanding animal populations (which, as she says, are always a result of human interference). She notes how we would not contemplate the same solution for human population problems. I respect Duffy's argument because I entirely agree, as I have maintained, especially in chapter 4, that animal lives are of value for the same kinds of reason as human lives are of value. My own defence of culling is to plead necessity. For Duffy, this is not good enough: she feels we do not try hard enough to find other solutions, and no doubt she is right. She advocates birth control, and research to implement this with different species. I accept that this is a more humane solution than culling, and I think zoos should indeed try to use birth control where possible instead of putting themselves in a situation where they have to cull. However I wonder if birth control really is such an ideal solution in general. With seals or herring gulls, where Duffy would rather use it than culling, it would mean much interference which, apart from the distress or disturbance to the animals concerned (and I note Midgley gives this as a great problem of birth control), seems to me to carry the simple risk of going wrong and causing unforeseen

damage to wild populations. At least culling carries no risk of biochemical or reproductive or ecological mishaps. And even humanely, it seems to me, culling is at least likely often to be "humaner" than nature. Red deer need to be culled by humans because of the absence of wolves. But as it happens, to be shot by an experienced stalker is probably a far less stressful death than to be killed by a wolf. So, in conclusion, while I think culling is an evil, and that we ought to make real efforts to avoid it if we can, I think it is far from being an unmitigated evil (42).

13.5 INTERFERENCE AND RESPONSIBILITY

It may seem that this whole need for animal management, even manipulation, is something objectionable. I certainly think we should interfere as little as possible both with free living populations and with animals in captivity, provided we are also fulfilling our conservational responsibilities. For this is how I see it: we have a dual set of responsibilities. We have our concern for animals as sentient individuals, who in some cases, most obviously (but by no means only) the great apes, are virtually persons (43). This is animal welfare, and it should be a positive as well as a negative business, i.e. enriching captive animals' lives, not merely protecting them from suffering. But we also have our responsibility, and I am regarding it mainly as a responsibility to other humans, but not exclusively so, to conserve animals (see 12.5). We

should do this too, while almost certainly granting animal welfare considerations precedence in the case of clashes between the two responsibilities.

There are difficulties. I have always respected Leonard Williams' view that one should not go splitting up primate families when convenient in the way one does with dogs; and his Woolly Monkey Sanctuary has avoided this. But with the coming of centralised management it is going to become more and more necessary to move animals from one collection to another. Those who work in zoos get to know their animals as individuals (44), so it is natural and creditable that keepers should be reluctant to let certain individual animals leave their care. Indeed there can be cases when it is inhumane, even in a relatively mild degree, to cease personally to care for an animal (45). I am tempted to call this problem the "Jimmy the Hyena factor" after a particularly tame hyena at Glasgow, a zoo "character", whose departure to another zoo (several years ago) my wife felt was regrettable. If such an animal goes elsewhere with full information accompanying him, so that his new keepers know as much about him as possible, including his name, his particular tameness and so on, and so that his zoo of origin can be kept in touch with him, this is a partial solution to the difficulty. I make no apology for the fact that I am seeing this in human terms, that I am suggesting the sort of thing which might ease the distress of, say, a human foster mother at having to lose the care of her foster child. For, as I have said,

animals can become individuals, can become persons, to us (46), and we should recognise this, especially because it may very well be a two-way relationship with the animal knowing his human as an individual and suffering a loss on losing him. We should not dismiss this aspect of zoo animals as sentimentality. On the other hand, we have got to be aware of our very real responsibilities as guardians of populations, and the fact that our responsibilities have to be balanced. Usually our responsibilities will not clash: the better animals' conditions in zoos are, the more suitable they will be for reintroduction where this seems the best step.

13.6 ZOOS' FAILINGS

Perhaps it is well to sound a note of caution, to recognise the possibility that many zoos will not co-operate with others in the way they should, will not even keep proper records, still less (for example) computerise them. On the one hand we have certain zoos with a high level of scientific expertise; on the other we have many with really none at all (as I shall comment in chapter 14). On the one hand we have sophisticated plans for zoos to treat all captive animals of a species as one population, following the best genetic advice available to maintain diversity; on the other we have zoos continuing to inbreed animals with known consequences in breeding potential, etc, when they have no excuse for not knowing better (47). Clearly not all zoo directors are entirely

co-operative or honest, though on the other hand certain zoos such as London and Jersey set a splendid example in both these respects (48). Obviously really poor zoos do not deserve to survive and perhaps will not. As it happens, however, one particular failing of zoos, their tendency not to co-operate, to regard each other as rivals rather than colleagues, is one which there is nothing like an outside enemy for curing, as history well demonstrates. As it happens also, the closest co-operation possible between zoos is precisely one of the respects in which the role they need to play now and in the future differs from their role in the past. It just may be, therefore, that outside threats will achieve what good advice from inside zoos may not do: i.e., get them working properly together in the way they need to if they are to do a proper conservational job. Outside threats could have the same effect with regard to behavioural improvements that zoos could make but are prevented by tradition or habit or lethargy from actually getting on with. After all, if I may take a zoological analogy, fast-running antelopes can run fast only because (among other reasons) their ancestors shared their world with threatening carnivores. In fact they would hardly be antelopes at all without the threats their ancestors faced. In a real sense carnivores have produced antelopes as we know them (by providing the necessary pressure for the useful mutations to be selected). So critics who aim at "phasing out" zoos may succeed instead in forcing them to evolve into the kind of

zoos they should be. Of course this is a mere speculation on my part, and it is one that those involved can hardly acknowledge even if they suspect its truth (49). The critics, in particular, can hardly acknowledge what I have suggested as the role they may have, for if they became so reasonable and understanding of the potential role of zoos, they would thereby cease to be hostile enough to force, unwittingly, the changes that are needed.

13.7 REINTRODUCTION

I am assuming that reintroduction is likely to be possible in any particular case, which may seem unwise in view of the way Midgley correctly emphasises the problems with reintroducing primates (50). Primates may well present particular difficulties (51). But it cannot, I think, be denied that several attempted reintroductions have already met with a considerable degree of success, such as those of the Hawaian goose, the European otter (52), Eagle owl, Arabian oryx, Scimitar-horned oryx, Pere David's deer (see 10.5, p 296 ff), and at least one tiger as described by Singh (53). Failure or partial failure does not prove that the nature of the zoo-bred animal is at fault: it may be a fault in the reintroduction procedure, which is clearly very important. Experience of releasing captive bred animals is however not in every case something new. Gamekeepers have (whatever one thinks of the purpose of their craft) a well-tried technique for releasing to the wild pheasants and partridges. I note

that even a correspondent hostile to zoos and the possibilities of widespread successful reintroductions conceded this was possible with "grazing animals and a few birds" (54). But Singh has provided strong evidence of how a cat's basic hunting tendency and ability are innate, even though an opportunity for the "fine-tuning" provided by practise or maternal training may be needed too (55). Singh shows how this can be provided by a human who knows what he is doing (56). But it is hardly surprising that a zoo-bred tiger could be reintroduced successfully. Many domestic cats could survive on their own if necessary (as many other feral animals such as goats do) (57). True, domestic cats have more freedom than cats in a zoo. But consider mink bred on mink farms. Here are captive bred carnivores, kept in pens either outside or in sheds, even selectively bred for special colour varieties (Aleutian, Palomino, Pastel, etc) and yet they have escaped (of course only occasionally) and gone feral so successfully (their coat colour reverting to the wild form in a few generations, as with other selectively bred colour variants of probably almost any animal) as to become a major pest (58). If mink could read, one wonders what they would make of the dreadful problems of readjustment to the wild (such as "inevitable deep addiction to a captive life-style") that seem to have passed them by: at least mink seem to refute any generalised claims of the overwhelming difficulties of reintroductions (59). Singh, in the appendix to his book, notes how much official

unwillingness there was to accept that it was possible to release successfully a captive bred tiger, on the grounds that it just could not support itself (which he shows patently not to have been the case), and that if it was possible it was undesirable because of the likelihood of the animal's becoming a maneater (which again Singh seems to show convincingly to be fallacious) or because of the tiger's not being pure-bred. Singh argues that the latter point too is an imaginary worry, at least with a single animal whose genes will be "swallowed up" in the gene pool (the tigress he releases does breed successfully) (60).

Obviously reintroductions must be approached responsibly (61); a transition period is necessary. But it does not seem to be necessarily impossible with any species. It will depend partly no doubt on the individual.

Clearly the more we are able to provide a captive environment which stimulates the occupant and encourages a wide range of its natural behaviour, the more that individual is likely to be a potentially successful subject for reintroduction. Even though the environment of any particular zoo animal is not in itself going to make any difference to the genetic makeup of its descendants, obviously it does make a great difference to the suitability of that particular animal for reintroduction.

So far as the genetic makeup is concerned, we should remember that periods of captivity by man are minute in length compared with evolutionary time. Even though

selection of course operates in captivity (i.e. quite apart from whatever "natural selection" we are intending to practise, or of course artificial selection as such), and this is so whatever we do to minimise it, it is still a very short time. I have already commented on the degree of natural behaviour retained in even highly selectively bred animals, and obviously therefore also in "zoo" animals (see chapter 6, pp 189-192).

13.8 SPECIES SELECTION, VALUING AND FINANCE

The extent to which zoos can help by captive breeding to save endangered species is of course limited, and most obviously so by the minute selection of species from the animal kingdom as a whole that they keep, and no doubt ever could keep. But why should this invalidate that small contribution they can make to the immensely important cause of animal conservation? We could, true, make the real situation clearer by calling zoos "selected charismatic megavertebrate conservation centres" to emphasise their limited role, and perhaps then, just as bird gardens, presumably, need not feel morally inadequate for not even trying to breed endangered mammals, SCMCCs (or zoos) would not be condemned, as Mulvaney seeks to condemn them, for having saved at the most a dozen species from extinction, "a mere 0.00012 per cent of all the life-forms on earth", perhaps "less species within the last 150 years than have become extinct within the last few days" (62). What Mulvaney leaves out is that we do not

value all species equally, although he clearly differentiates between them as much as the rest of us. The evidence is there in his photograph, in the presence of his English setter. Dogs are special – to humans. We would regret their extinction more than we would regret the extinction of any of the vast number of invertebrate species, probably mostly beetles, that allow Mulvaney to shrink, as he does, the zoo achievement. I accept that every species, every protozoan, every alga, every bacterium, is of immense scientific interest and sometimes (e.g. many protozoans) of exquisite beauty too. Every one is the product of 2,000 million years of evolution. Still more do I accept that to save the rain forest from the appalling way in which it is being destroyed for the shortest of short term advantages is of the utmost importance, and much more important even than saving any charismatic megavertebrate (63). But what I do not accept is that the need to save natural habitats such as rain forests, and the millions of species contained in them, can in any way mean that it is not right to try to save such exceptional species – in terms of their appeal to humans – as the Arabian oryx or the Californian condor. To save either of these is comparable, as an achievement, to saving the Taj Mahal (see 12.1, p 350).

Imagine a world in which humans exist, and plants, and animals too, but it happens (either because these humans are not very zoologically exploratory, or for some other reason) that the only kinds of animals known are

those which specially appeal to them, like tigers, oryxes and condors. It would be reprehensible if they carelessly or wantonly killed them off, but in fact they admire these creatures greatly and are careful to conserve them. Then, at last, discoveries are made, and the humans find that their world is even more wonderful than they knew; it is shared not only by tigers, oryxes and the like, but also by innumerable invertebrates including tapeworms, tsetse flies and thousands of beetles. Now the naturalists among the humans will realise that these newly discovered species are just as interesting as the larger, more obviously impressive ones they already knew, and will be just as keen, quite rightly in my view, to conserve them (should they appear to be in danger of extinction). But, and this is the point of my parable, I do not think that the new discoveries can logically be a reason why it now does not matter about conserving the tigers and oryxes. At least, I do not think the new discoveries should be regarded as a reason for this, for the features of the larger animals that made them worth saving are still exactly the same.

I realise that my emphasis on the animals zoos keep as being invariably ones that appeal to humans may seem unduly anthropocentric, and that it also fails to recognise the responsibility a zoo like Jersey feels to save species in need of help (such as many threatened island populations of boas, for example, or the Volcano rabbit, or peccaries) irrespective of their human appeal.

I do not in fact think that the scientific importance of such work should be underrated, or indeed the way in which Jersey emphasises the importance of conservation in the field and "ex situ" as two sides of one coin. But I do think that the saving of a species like the Arabian oryx can be quite properly compared to the saving of some great work of art and given proper credit as something immensely worth doing even if it does not compare in importance with saving the South American rain forest (which I do not think anyone would suggest it did).

Perhaps, in my imagined world, the discovery of the invertebrates would make a difference. It would be another claim on the (no doubt) limited financial resources available, previously only required for large mammals like tigers and oryxes. Certainly, zoos are accused of swallowing up large sums of money which would be better spent protecting actual natural habitats, and it is noted that both Operation Oryx and the attempt to save the Californian condor by captive breeding have been immensely expensive (64). London Zoo is sometimes blamed for seeking or succeeding in getting large grants from the Government which could better go to protect wild habitats. My answer with regard to the oryx and the condor is first, that both are charismatic megavertebrates, and that their appeal to us is and should be perfectly comparable to that of some great human work of art (like the Taj Mahal). We would spend millions to save that; it is creditable, not profligate, to spend millions trying to save the oryx or

the condor. The second point is that in these two cases captive breeding happens or happened to be the only way to do it, or at least seems the best way. Of course, if we could have saved either of these for the same or less money by protecting their habitats, that would have been the way to do it. But we are right to try to save them (just as it would be shocking if we allowed tigers to go extinct while spending on a mere painting of a tiger a sum that would have saved them), and by the best method available in the particular circumstances. The position is rather different with the general accusation against zoos. I am not personally arguing that zoos are justified solely by their role as captive breeders of endangered species, though some, such as John Aspinall, would argue that (65). So far as London is concerned, I think it has a perfectly good claim to government support as a national British institution, comparable to the British Museum (Natural History) (which I believe began as the Zoological Society's museum). It has difficulty in getting it, while other countries have national zoos, because the British government has always been stingy over such things (Buckland in 1880 was appalled by the Government's failure to make any proper contribution to an International Exhibition of Fisheries in Berlin (66)). Some critics seem to regard London Zoo as behaving immorally, but if that charge can be substantiated, then the Zoo should not exist, not merely have no claim for support. If (as I think) the charge can not be substantiated, then, as a

major scientific and educational institution, it has a claim for government support. It has a claim for that support partly because of its conservational work, including work in the field, but because of other roles also (67). To say that the money would be better spent on the protection of natural habitats may still be correct, but not necessarily more so than the fact that (as Mulvaney reminds us) the claims of disappearing forest are so desperately serious as to dwarf the claims to public money of the Royal Shakespeare Company or the Royal Opera House or any other such inessential institution. But in any case it is true of any zoo that much of its money comes from the gate, and, if the zoo did not exist, would in no way be available instead for conservation of wild habitats - just as, indeed, government grants for London Zoo (in as much as they exist) would, if withdrawn, be highly unlikely to be diverted to conservation in the wild instead (68). On the other hand, if zoos directly or indirectly raise money for conservation in the wild, that is as it were a bonus for the wild: money that would not otherwise have been available.

13.9 SUPPLEMENTARY CONSERVATIONAL ROLES

There are other ways in which zoos can help conservation. Their scientific and educational roles are both in the end, I think, most obviously justified by the assistance they can give, and do give, to conservation (see chapters 14 and 15). Zoos can also act as a powerhouse of

motivation for concern about conservation, i.e. enlisting the interest and concern of the public as well as actually raising money for conservation in the field. I do not see this as more than a supplementary conservation function that zoos can perform. But still it makes sense to argue that people are unlikely to be concerned about the survival of animals of which they have no real experience and that, while they can indeed see them in their natural habitats on film and television, they can also be influenced by the more direct experience available in a zoo. This can still apply, even given the very limited selection of animals in zoos referred to above. But this kind of conservational role for a zoo overlaps with its educational role, and I will look at it further in the next chapter but one.

One rather interesting minor aid to conservation they may provide is that of diverting at least some of the pressure that would be felt if zoos' millions of visitors (see chapter 2, p 40) really all wanted and could afford to experience wildlife "directly" in, say, East African national parks. My wife remarked once that she could not see why people should expect animals to be brought to them to look at when they know, if they want to see the Taj Mahal, they have no choice but to go and see it "in situ" (69). I do not know about the Taj Mahal, but I am interested by the need now under discussion to construct a model of Stonehenge because of tourist wear and tear, and a most marvellous and effective model was actually opened

three years ago of the Lascaux Caves, with their 15000 year old cave paintings, in France. It is a problem well known to the National Trust, who I am told have a phrase "honey pots" for public areas designed to do just what it seems to me zoos can do - help to divert a large proportion of visitors from visiting and thus damaging the actual wild or near-wild areas. The Countryside Commission's advice to those interpreting sites to the public includes directions for protecting areas from over-use by visitors (70).

In recent months alone I have noted accounts about the pressure from the public on cheetahs and also on leopards in national parks, and of hotel visitor excess pressure on turtle egg-laying on a Greek island (71). Cherfas discusses tourist pressure on coral reefs (and other examples) in Zoo 2000 (72). I am not disputing that nothing a zoo can provide can rival seeing wildlife in the wild. Neither am I saying that zoos necessarily today dissuade many people or anyone from visiting African national parks, and they must sometimes of course do the opposite: encourage people who would not have thought of it otherwise to go and see the "real thing". I am simply suggesting that zoos may already, and certainly could in the future, provide as it were living models to help to protect the "real thing". The better the zoo can provide seemingly real habitats, the better of course it can fulfil this role.

One could take my model suggestion further and

propose real models, e.g. laser sculptures (or updated clockwork toys like Descartes' hydraulic statues?) replacing animals altogether (73). This might be a good idea if there were not other strong reasons for keeping actual animals, if we had good reason to suppose that the animals we wanted to replace were not in a state of wellbeing in the zoo, and if there were any likelihood of being able to construct models of a more than Disneyish nature. This is a theme I will return to in chapter 16.

13.10 HYPOCRISY

The suggestion that zoos are insincere in their claimed aim of aiding conservation ([Z9 above]) is difficult to refute partly because almost any supposedly praiseworthy activity is open to this particular blunderbuss of an accusation. Any successful, or even unsuccessful, person has various motives. Peter Singer may have written Animal Liberation because this was a new field to get his teeth into and make his reputation with. This, even if true, is still irrelevant to any assessment of the book's usefulness or importance. On the other hand, I accept that there is a good deal of truth in a charge of hypocrisy or insincerity with regard to zoos. They all do happily claim to be assisting conservation, when (as Jamieson puts it) there is comparatively little breeding going on and most of it is not of endangered animals (74). But it is also true that there is no reason to doubt the genuine intentions, and the ability to put those intentions into

effective action, of certain zoos and their directors - in Britain, say, Marwell, Jersey, Howletts, London, Whipsnade, Chester to take just a handful of examples. At the same time, as I have said, people's motivations do not necessarily invalidate what they do. Durrell's passion for not only studying wild creatures but also collecting them clearly preceded his serious conservational aims - so much is clear from his own books, especially My Family and Other Animals. Maybe his later serious claims are a rationalising of what he just likes doing anyway. This does not matter. Those claims, and the actual achievements, can be evaluated in their own right, and are very properly normally and generally acclaimed. This does not relieve many lesser places of the charge of hypocrisy. But, as I have tried to show, it is a) up to them to follow the example of the best places; b) new developments in captive breeding mean that they all have a contribution to make, if they are prepared to do so. There are perhaps great practical difficulties in the way of their doing so, such as their likely reluctance to follow directions at any rate to the extent that will be necessary (75). But they need to do so. I am not seeking to defend zoos per se. I am seeking to show that zoos have a proper role to play if they can meet the challenge. Those which can not will deserve to disappear.

13.11 ON KEEPING ONLY ENDANGERED ANIMALS

Finally, I want to repeat that I am not myself claiming

that zoos' conservational role by captive breeding, i.e. their breeding of endangered animals, is their sole proper justification for existing. This view can be genuinely held, as it is by Aspinall. It no doubt suits some critics to hold this view because they can then accuse zoos, without much difficulty, of having many animals which are not needed for conservational captive breeding. I think a "middle of the road" view is the correct one. At the moment, the conservational captive breeding role may well be claimed and granted as a justification for, e.g., Jersey, Marwell and Howletts. It may be that the main conservational role of most zoos for the present is through their educational role, but they should also keep an eye on what animals need to be captive bred for conservational reasons, and keep these as far as possible in preference to other animals. The situation should change as centralised breeding management, already in operation in regard to some species, such as the great apes, becomes more extensive. Even where a zoo specifically and genuinely has as its aim the breeding of endangered species, it can hardly do this efficiently without the necessary experience, which means in practice that it can not only keep endangered animals. (There are also other minor roles for zoos, even in connection with wild habitat management, such as providing a place to send maneating tigers to (76).)

NOTES TO CHAPTER 13

1. Jamieson, op. cit. (p 23 above, Note 18), p 114 and p 117 (killing of chimpanzees); M. Midgley, letter to The Independent, 26 Aug 1987.
2. Mountfort, op. cit. (p 194 above, Note 14) (on tigers); T.J. Phillips, letter to The Times, 15 Sept 1980.
3. Jamieson, op. cit., p 115; J. Mein, letter to The Times, 30 Aug 1980 ("go extinct gracefully"); T.J. Phillips, op. cit.; R. Seligman, letter to The Independent, 21 Aug 1987.
4. Jamieson, op. cit., p 115 (100 would be maximum number of species saveable by zoos; only eight in large enough numbers so far); W. Travers, "Animals are born free but everywhere they are behind bars", The Independent, 18 Aug 1987 (only a very few species saved or helped in 150 years); C. Lever, letters to The Independent, 25 Aug 1987 and 31 Aug 1987; V. McKenna, letter to The Independent, 26 Aug 1987; W. Travers, letter to The Independent, 2 Sept 1987.
5. North, op. cit. (p 24 above, Note 23), pp 104-5 (on breeding figures at London).
6. North, op. cit., p 108; Jamieson, op. cit., p 115; W. Travers, "Animals are born free but everywhere they are behind bars", The Independent, 18 Aug 1987.
7. Jamieson, op. cit., p 116; C. Lever, Introduction to McKenna, op. cit. (p 23 above, Note 18), p 16.
8. North, op. cit., p 107; C. Lever, letter to The Independent, 25 Aug 1987.
9. North, op. cit., p 106.
10. Phillips, op. cit.
11. T.J. Foose, U.S. Seal and N.R. Flesness, "Conserving animal genetic resources", IUCN Bulletin Vol 16, No 1-3, Jan/March 1985, pp 20-21, for mammoth example, and also terms "in situ" and "ex situ". They also emphasise how it can be impossible to preserve large enough ecosystem areas for long-term viability or decide how large an area is needed.
12. B. Bertram, letter to The Times, 6 Sept 1980; R.J. Wheater, "Zoos of the future" in J.P. Hearn and J.K. Hodges (eds), Advances in Animal Conservation, Symp zool Soc Lond 54, 1985, pp 112-114 (personal experience of recent dangers to wildlife in Uganda).
13. Midgley, op. cit.
14. M.R. Brambell, "Trade in and exploitation of endangered exotic species of animals" in Hearn and Hodges, op. cit., pp 222-223.
15. CITES is the abbreviation for the Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora (1975); see Brambell, op. cit., pp 224-230.
16. For the extent of the world-wide trade in parrots (nearly all wild caught), see Brambell, op. cit., p 221; see also articles such as "Exposed: callous trade in rare

birds", The Sunday Times, 23 March 1986.

17. J.-Y. Domalain, The Animal Connection (London: Heinemann, 1978).

18. Midgley, op. cit.

19. J. Cherfas, "Gorilla orphans that should be left to die", The Independent, 6 July 1987. Capturing apes irresponsibly is indefensible anyway, and unspeakably so when involving many deaths in the way Midgley reminds us of (op. cit.). This is still occurring with chimpanzees exported for use by beach photographers in Spain (as described in "The Chimpanzee Tourist Trap", Radio 4, 26 March 1987, researched by Tess Lemmon), but it is clearly not occurring in connection with British zoos; see, however, S. Harcourt, "The Cameroon connection", BBC Wildlife 5, 5, May 1987, p 251.

On the other hand, as an example of how zoos can flout regulations on animal imports, see S. Campbell (op. cit., pp 31-36) for a major case of disreputable reptile dealing in America in the early 70's; this chapter ("Send Birds of Paradise, but Color Them Magpie", pp 27-55) includes a useful account of the history of animal capturing and dealing for zoos.

20. M. Midgley, "Keeping Species on Ice", in McKenna, op. cit, p 60, discussing M. Mensink, "Julia: a gorilla with an identity crisis", New Scientist 1513, 19 June 1986, pp 68-69.

21. Brambell, op. cit., p 223.

22. U.S. Seal et al, "ISIS: a computerised record system for management of captive populations", Int Zoo Yb 17, 1977, p 68; T.J. Foose, "Demographic models for management of captive populations", ibid, p 70; N.R. Flesness, "Gene pool conservation and computer anaysis", ibid, p 77; for the prospect of a joint zoo Animal Records Keeping System (ARKS) in Britain, linked to ISIS, see, e.g., A. Hills, "How the animals went into the ARKS", The Guardian, 9 April 1987.

23. For a list of 57 studbooks, e.g. for all apes, five other primates, five cat species, twelve ungulate species, see Int Zoo Yb 22, 1982, pp 474-479.

24. O.H. Frankel and M.E. Soule, Conservation and Evolution (Cambridge: CUP, 1981), pp 74 (minimum effective population size of 50), 91 (minimum effective population of 500 for long term survival).

25. R.K. Chesser et al, "Management and maintenance of genetic variability in endangered species", Int Zoo Yb 20, 1980, p 148.

26. Midgley, op. cit., p 58.

27. See T.J. Foose, "Demographic management of endangered species in captivity", Int Zoo Yb 20, 1980, pp 154-155, for appreciation of difficulties; also, for this and for graphic illustration of them in connection with international transport and the problems of paperwork, see Campbell, op. cit. (p 41 above, Note 6), pp 216-226.

28. Not that even large groups of animals cannot be moved in a both efficient and humane way: see A. Bateson, "The

welfare of pigs in transit" in T.E. Gibson and D.A. Paterson (eds), The Welfare of Animals in Transit, BVA Animal Welfare Foundation's Third Symposium, 1986.

29. Midgley, op. cit., pp 58-59.

30. Hearn and Hodges, op. cit., pp 123-204.

31. "Zoo fights for Komodo dragons", The Times, 27 June 1986.

32. Midgley, op. cit., p 58 ff.

33. Foose et al, op. cit., p 21.

34. See J.P. Hearn, "Early embryonic development and the conservation of mammals" in Hearn and Hodges, op. cit, p 171, for the likely near doubling of the world's population in the next fifty years, and the need to "consider animals in captiviy and in the wild as one stock to be managed as a whole"; Midgley, op. cit., pp 57-62.

35. "Killing time at the zoo", Scottish Daily Express, 14 Nov 1984.

36. Jamieson, op. cit., p 115.

37. North, op. cit., p 109. On the same page he comments that we "torture the last shards of creation's previous immense variety rather than let them go into the extinction we have forced on them". His term "torture" seems oddly at variance with his account five pages earlier of Dr Bertram at London showing him "a pair of glowingly bronzed golden lion tamarins... in their Habitat-style little bit of jungle in an English city". McKenna notes that "in the zoo... death often comes before its time - to the healthy, the young and the newly born" (op. cit., p 39).

38. The Highlands and Islands population of about 180,000 red deer is "kept reasonably stable by the annual cull of about 30,000 head" (David Stephen, Highland Animals (Inverness: Highland and Islands Development Board, 1974), p 11).

39. G. MacBeth (ed), The Penguin Book of Animal Verse (Harmondsworth: 1965), p 132. But consider Maureen Duffy, Men and Beasts (London: Paladin/Granada, 1984), espec. pp 90-91, for the selectiveness of popular concern: killing whales, seals (and elephants?) causes outrage, but not killing cattle or rats.

40. John Cherrington, A Farming Year (London: Hodder and Stoughton, 1983), p 130: "Bulls and rams can be infertile, cows and ewes can be barren, in which case they must be culled."

Maureen Green, "Such Mice People", Observer Colour Supplement, 21 Aug 1983: "British mouse fanciers are a passionately competitive lot, devoted to the tiny animals they breed in extraordinary and beautiful variety.... Surplus mice are knocked on the head or sold to the reptile department of London Zoo" (pp 8 and 10).

41. Tom Regan, The Case for Animal Rights (London: Routledge and Kegan Paul, 1983), pp 109-116.

42. Duffy, op. cit., pp 87-90; Midgley, op. cit., p 58.

43. Mary Midgley, "Persons and Non-Persons" in P. Singer (ed), In Defence of Animals, pp 52-62; see also Duffy,

op. cit., p 80 ff for perceptive discussion of our hesitation to count any animals as persons.

44. See Fiedler, op. cit. (p 22 above), p 8 for an appreciation of the educational importance of zoos' emphasis on individual animals.

45. As even Virginia McKenna has had to do, and as she sensitively describes in Some of my Friends have Tails (London: Collins and Harvill, 1970), pp 26-27.

46. Perhaps it would be more accurate to say that we can begin to appreciate the extent to which they are individuals and persons: this aspect of them is not brought into being by our getting to know them well.

47. K. Benirschke, "The genetic management of exotic animals" in Hearn and Hodges, op. cit., pp 71-87, espec. pp 81-83.

48. See Smith, op. cit. (p 21 above), pp xiii-xiv, for some comments on zoo directors, comments understandably resented by London (see Zuckerman, op. cit. (p 21)) to whom they are certainly inapplicable.

49. Though I notice that John Aspinall suggests this (letter to The Independent, c. 5 Sept 1987).

50. M. Midgley, "Keeping Species on Ice" in McKenna, op. cit., p 59-60.

51. Tess Lemmon explains well the problems of primate reintroductions in "The long way back to nature", BBC Wildlife 5, 4, April 1987, pp 172-175; but there has been some success with Golden Lion tamarins.

52. "Otters breed in wild", The Times, 24 Aug 1985: four groups of young otters (eleven animals) had been released by the Otter Trust since 1983; there was evidence of breeding in second consecutive year by at least one female.

53. Arjan Singh, Tiger! Tiger! (London: Cape, 1984), pp 11, 12, 87, 88.

54. Phillips, op. cit.

55. Singh, op. cit.; see also p 156 above, for cheetah practise in killing, and Ammann, op. cit. (p 182 above, Note 11), p 111; this emphasises how, indeed, a captive-bred cat should not just be "dumped" in the wild and left to fend for itself, unless at least there are good reasons for being sure it will manage; but see P. Street, Animals in Captivity (London: Faber, 1965), pp 222-223: an escaped panther fended for itself successfully for ten weeks in the Swiss mountains in the autumn of 1933; cf R. Tabor, The Wildlife of The Domestic Cat (London: Arrow, 1983), p 108.

56. Singh, op. cit., pp 165 and 173-175.

57. See Tabor, op. cit., p 59, for a group of farm cats found to be "largely self-supporting".

58. Christopher Lever, The Naturalized Animals of the British Isles (London: Hutchinson, 1977), pp 133-141.

59. Midgley,, op. cit., pp 58-59; see also Colin Tudge, "Romance outruns reason", New Scientist 116, 1580, 1 Oct 1987, pp 72-73.

60. Singh, op. cit., pp 203-211.

61. H. Jungius, "Prospects for re-introduction" in Hearn and Hodges, op. cit., pp 47-55.
62. K. Mulvaney, "Conservation as a human problem" in McKenna, op. cit., p 152. The term "charismatic megavertebrate" I take from Foose et al, op. cit.
63. Mulvaney, op. cit., pp 149-152.
64. Ibid, p 153.
65. Aspinall, op. cit.
66. Bompas, op. cit. (p 343 above, Note 30) pp 392-394: as the British delegate commented, "True to the ancient English tradition of preferrring individual enterprise to state action, Her Britannic Majesty's Government declined to apply for any appropriation of the public funds, towards participating in a Fishery Exhibition of all nations."
67. David Jones, in a letter to The Independent (27 Aug 1987), mentioned that "many of the people contributing directly to conservation, both organisationally and in the field, are zoo-based and zoo-funded"; a point which, it seems to me, Sir Christopher Lever, replying (letter to The Independent, 31 Aug 1987), pointedly ignored.
68. C.G.C. Rawlins, "Zoos and conservation: the last 20 years" in Hearne and Hodges, op. cit., pp 59-69, espec. p 69; Wheater, op. cit., p 116.
69. A comparison made both by McKenna (op. cit., p 34): "would we expect another Taj Mahal to be built in Piccadilly Circus?"; and by B. Travers (M.A. Fitzgerald, "Born Free star leads campaign to ban zoos", The Independent, 31 Dec 1986, p 10): "We don't make models of the sphinx on Salisbury Plain."
70. Don Aldridge, Principles of Countryside Interpretation and Interpretive Planning, Guide to Countryside Interpretation Part one (Edinburgh: HMSO for Countryside Commission for Scotland, 1975), pp 13 and 17.
71. C. Lever, letter to The Times, 27 June 1986 (about cheetahs); H. Miles, "The Cat in the Car-park", BBC Wildlife 4, 10, Oct 1986, pp 462-466 (about leopards); B. Hobley, letter to The Times, 14 July 1986 (about turtles).
72. Cherfas, op. cit. (p 21 above), pp 199-201 (coral reefs); pp 211-224 (meeting turtles, Fairy penguins and Grey whales), espec. p 224 on need for management of such arranged meetings.
73. Fitzgerald, op. cit.: "Zoo Check's suggested alternative is the creation of wildlife study centres displaying lifesize replicas of wild animals that would be such faithful imitations they would even feel and smell real."
74. Jamieson, op. cit., p 116.
75. Smith, op. cit. (p 21 above), p xiii.
76. WWF Conservation Yearbook 1985/86 (WWF Information and Education Division, 1986), p 439.

Chapter 14

SCIENCE IN ZOOS

I want now to consider how far zoos' contribution to science can be regarded, as it normally is, as one of their major justifications. I shall first list and comment on various kinds of way in which zoos may assist science (1):

14.1 SCIENTIFIC ROLES

14.1.1 TAXONOMY

Zoos can provide living examples for the study of taxonomy, a major role of zoos in the 19th century. It is now performed mainly by museums, whose study collections are likely to be far larger than any zoo's because of various advantages of dead specimens, most obviously their ease of storage and convenience for study, and their permanence. I think of items like study skins of vertebrates, invertebrates of all kinds, especially arthropods with their non-decaying exoskeletons and so on. But it is much better where possible to have living specimens available for study also, most obviously so that behaviour patterns, themselves often significant taxonomic factors, can be studied (2). And to acquire the dead specimens we have of course to start with living specimens, which may very well be animals in a zoo (see 14.1.7 below).

14.1.2 GENERAL OBSERVATIONS, ESPECIALLY CONCERNING BREEDING

Zoos provide opportunities for the recording of various data such as the periods between births, lengths of gestation, perhaps details of courtship behaviour, notes on what particular animals eat, or details of their manner of eating (3). Certain observations or discoveries may only be possible, and certainly only likely or practicable, when one has the animals at close quarters and, perhaps, in one's care (4). Some observations will be part of more elaborate projects of a physiological or behavioural nature, or involve chemical analyses – e.g. of the constituents of gorilla milk, or of the saliva of different cats.

14.1.3 PHYSIOLOGY, ESPECIALLY REPRODUCTIVE

I mean by this still more elaborate and sophisticated physiological work, especially in the physiology of reproduction, such as I have discussed above in 13.3 (p 379 ff). I will say little further about this here, other than that, so far as Britain is concerned, such work occurs mostly in the Institute of Zoology of the Zoological Society of London, and that it is becoming more and more geared to the requirements of practical conservation both with captive breeding and in the field. Hearn has recently stressed the non-invasive nature of much of this work: i.e., it does not involve drastic treatment of the animal (5).

14.1.4 VETERINARY STUDY

Vast possibilities for the increase of veterinary knowledge arise from the care and treatment of animals in zoos: finding out what different species are susceptible to, and what is effective in treatment. It may seem that this knowledge is only needed because of the fact that various wild animals are kept in zoos, an extension of a point made by Jamieson (see chapter 1, p 9 above). Thus, given we have such and such animals in zoos, it is of course creditable we should not only treat them but engage in research in order to treat them better; but such research can hardly be a justification for zoos, because we would not need it if we did not have zoos in the first place.

I think there is a good deal of truth in this. After all, veterinary science is essentially the applied science (and art) of caring for animals which man happens to keep and also, to a great extent, which he needs (or at least exploits). The very word "veterinary" comes from the Latin for cattle ("veterinae"; the term comes via "veterinarius"). But veterinary knowledge arising from study and treatment of "zoo" animals can be counted to some extent as desirable knowledge independently of its zoo applications in as much as:

a) Wild animals are related to, and can suffer from similar diseases to, domesticated animals. Understanding of the former interrelates with and assists understanding of the latter.

b) Understanding of diseases in wild animals can be of great theoretical interest, e.g. because of the part played by disease in evolution (see p 167 above), and its genetic connections; and of practical importance quite apart from man's keeping of animals, e.g. because of the fact that parasites of man or domestic animals - such as trypanosomes (the protozoans which cause sleeping sickness) - can be endemic in wild populations.

c) Knowledge concerning the efficient use of techniques such as the administering of drugs to anaesthetise animals and to revive them, and the application of such drugs by gun or blowpipe, can be needed on occasion in the management of wild animals, apart from any question of taking them for captivity, e.g. in operations to transport wild animals from flooded areas, or areas scheduled for development.

So while no doubt veterinary research in zoos is partly a matter of studying what different species suffer from in captive conditions, it is much more than this: much of what is learnt is likely to be applicable to animals in the wild state. Zoo postmortem cases will often be of particular veterinary interest because of the comparative rarity of the animals in normal veterinary practise.

14.1.5 GENETICS

One can hardly do genetic studies on animals in the wild state because one has no control over which individuals are mated. Zoo animals are not the obvious material either

because, for example in the study of the genetics of mammalian coat colour, it is among various domestic animals that the mutations which geneticists need to study are "nurtured". So it is rabbits, rats, mice and so on that are the great sources of genetic knowledge. But zoos provide a useful supplement to these, making possible at least some study on the genes as they occur in (relatively) wild animals.

Zoos could play a greater role here were it not an essential aspect of their conservational responsibilities to avoid selective breeding, at least with animals rare in the wild; they may reasonably feel they have some licence with animals common in captivity to breed unusual variants. But note, in any case, that breeding as a leisure pursuit of the members of the various "fancies" has, since before the days of Darwin, produced a vastly important amount of material for the scientific geneticist to investigate. Indeed, Darwin's own investigations of the work of selective breeders (the subject of the first chapter of The Origin of Species) played a major part in the long mental gestation of his theory of evolution (6). Thus the study of domesticated, if not necessarily captive, animals was actually essential to perhaps the greatest scientific discovery since Newton. There is no question that keeping animals in captivity in a wide sense, although not normally as this occurs in zoos, is essential to much genetic study (7). With the development of the integrated management of conspecifics in different

zoos as one population, as discussed in 13.2 (p 372 ff), there may well be "spin-offs" from captive population studies for the understanding of the genetics of wild populations (8).

14.1.6 BEHAVIOUR

The kind of behavioural study normally done in zoos is observational, perhaps with some experimental input, but with none such as to cause any distress or injury to the animal. This would be, quite apart from moral considerations, inappropriate to zoos where the animals are there primarily (from the human point of view) for exhibition and obviously therefore not going to be available for scientific research such as will in any way injure them (9). Such behavioural observations are likely to be aimed at understanding the natural behaviour of the species concerned, rather than using it as a tool for understanding something else. This would be ethology rather than psychological study, or rather than using the animal as a model for some human medical problem (as in a study of lead poisoning in zoo animals referred to by Jamieson (10)).

This kind of behavioural study, while presumably encouraged by London's Secretary in the late 1930's, Julian Huxley (himself an ethological pioneer), and while Zuckerman's famous study of baboon behaviour in the 30's is regarded as of seminal importance, seems not to have been in the ascendant at London in the post-war period (11). London's scientific status was then being

re-established by the founding of the Institutes of Comparative Medicine and Reproductive Physiology (12). The importance of ethology - i.e., the study of animals' natural behaviour often in the field, and very much in its own right as a subject of interest - was by no means universally recognised among biologists 35 years ago, but the situation is quite different today, as illustrated by remarkably contrasting comments on the usefulness of field studies expressed by Medawar in 1951 and in 1984 (13). Studies of Celebes macaques at London and of chimpanzees at Arnhem, Holland, are just two examples of the recognised possibilities of zoo-based ethological study today (14). Work of this kind is an elaboration of the more isolated behavioural observations such as I referred to in 14.1.2 above. There is no sharp line between the two. Many kinds of "captive" behavioural study are possible, e.g., of the "flight" of a flying lemur, of the grazing behaviour of wallabies, or the swimming movements of a paper nautilus, or even gorilla social relations as experienced by temporarily becoming one of the group (15).

One might reasonably doubt the value of captive behavioural study on the grounds of the likely abnormality of the behaviour observed. Certainly this has to be taken into account, as it clearly usually is (16). The Zuckerman study (see above) is often referred to (e.g. by Rachels) as an example of how a researcher can be misled by the artificiality of a captive situation. Certainly it underlines both the importance of making allowance for

likely abnormality compared with the wild in any conclusions one comes to, and for the keeping of animals in, as far as possible, natural groups. But a recent writer, Jolly, stresses how Zuckerman's suggestion "that year-round sex was the underlying primate bond" (as well as, I presume, his over-estimate of the part played by aggressive dominance in primate groups), while shown to be mistaken in the light of much subsequent research, was correct in terms of "all the data available at the time". Zuckerman described "hamadryas baboons fighting to the death over females", a result of there being far too many males in the group on London's Baboon Rock (see chapter 2, p 37 above). But the importance of correct sex-ratios in groups of animals is now fully appreciated by zoos (17).

To realise the falsity of assuming that no behavioural observations in captivity are valid one has only to look at a series of photographs such as those in a popular study of animal behaviour by the director of Prague Zoo: an oryx scratching with its horn, an okapi licking its eye with its tongue and a Clouded leopard cleaning its claws with its tongue (18). At the very least we are receiving a quite objective demonstration of the animals' ability to perform these respective actions. The ability is there even if in every case the performance of the act occurred only in response to captive conditions. But there is no reason to assume this generally, though there may be good reasons in any particular case, and we should be aware of the possibility. These particular

maintenance activities of the oryx, okapi and Clouded leopard would almost certainly occur in the wild, perhaps with a different frequency to their occurrence in captivity. I am well supported, I think, by Sadleir's confidence that the reproductive behaviour, etc of (even) domestic animals has much application to wild animals (19). (It is perhaps worth mentioning that, much as the occurrence of abnormal behaviour in captivity is to be regretted, at least any which seems to indicate a condition of distress of some kind in the animal (see 9.4, p 230 above), it is not the case that study of such behaviour could have no general application (other than to the study of animals' behaviour in artificial conditions) (20).)

14.1.7 STUDY OF DEAD SPECIMENS AND "BIOFACTS"

Providing dead specimens (or parts of them) for anatomical study, I think it is fair to say, is the most definite way in which London Zoo assisted scientific research throughout its 19th century existence. And obviously other zoos can perform at least this function too, the now defunct Belle Vue for example (21).

Many animals are also a source of various "biofacts" - e.g. regularly moulted exoskeletons of arthropods like crabs, lobsters, tarantulas, scorpions; antlers, horns, hair, feathers; carapaces etc of chelonids, sloughs of snakes, and shed scales of lizards. These, like dead specimens, can of course be studied (22).

14.1.8 MILIEU FOR SCIENTIFIC ACTIVITIES

I called this a list of ways in which zoos can assist science and think I should add one more, though it is not itself a kind of research. A zoo can be a focal point for other scientific (and conservational) activities such as meetings or the publication of scientific journals, or scientific studies not depending directly or even indirectly on actual animals in the zoo (23). This is really the respect in which the Zoological Society of London was scientific from the start, and London is still a scientific society with its "menagerie" a part but by no means the whole of its raison d'etre (24). One could compare the way in which a museum like the British Museum (Natural History) is a centre for research not necessarily much connected, if at all, with the museum's public displays, perhaps even less so now than formerly (see p 368 above, Note 11).

Zoos such as London and New York sponsor and fund field research, in Africa and elsewhere, research which it is possible to argue, as Jamieson does, could easily be separated from its zoo "base". This may be so, but it is at least possible that the odd and intricate ways in which institutions themselves evolve and function mean that losing the one - the zoo - would mean losing the other too - the field research (see 11.4, p 327 above). In any case, studies in the wild and in captivity often complement each other (25).

14.2 ON ZOOS NOT BEING SCIENTIFIC

Before I discuss any of these further, I must grant one important point against zoos as scientific institutions, and that is that most of them are not anything of the kind. They were not, most of them (and I am speaking mainly of this country), founded as such, they are not directed or staffed by people trained in science or with any interest in or motivation for making scientific observations. Their enclosures are not designed with scientific study in mind, their animals are not selected for their scientific interest. They would probably regard their aim as to make a reputable living from recreational provision for the public, and their only recognition of science as having any application to their activities would be that some scientific information may help them to keep certain animals more successfully - keep them alive and in good health and encourage them to breed.

But however true all this is, and I hope I am exaggerating, it is not the whole picture. So far as this country is concerned anyway, it is only fair to recognise that the Federation Of Zoological Gardens of Great Britain and Ireland was founded as long ago as 1966 with the intention of encouraging the raising of zoo standards. From the start applicant zoos had to undergo successfully an inspection (with special attention to quality of animal care), followed by regular reinspections. The Federation has been pressing since at least the early 1970's for zoo legislation. The Federation has, with support from the

RSPCA, initiated a countrywide Keepers' Training Scheme. It requires all its members to maintain at least basic animal records. Jamieson's doubting of the genuineness of many American zoos' conservational claims in view of their lack of records is reasonable enough; but at least it would not apply to all those British zoos who belong to the Federation. That many zoos' records are inadequate, though, is spelt out clearly by Durrell; he makes many other deserved criticisms of British zoos (26). His own zoo is in many ways setting an example with its scientifically-motivated staff, several (though not all) academically qualified, approaching their work in a serious spirit, and studying their animals to the utmost (and recording their observations) as well as maintaining them (with a concentration on breeding programmes).

14.3 THE USEFULNESS OF SCIENCE IN ZOOS

I have suggested that scientific work in zoos could be divided into:

1. Taxonomic; 2. "Basic Observational"; 3. Reproductive-Physiological; 4. Veterinary; 5. Genetic; 6. Behavioural; 7. "Productional".

Perhaps the first of these should not be a division on its own, but part of 2. "Basic Observational" (so far as measurements go) and of 6. Behavioural. But I wanted to show that the older role of zoos as "taxonomic demonstrators" was not entirely superseded.

Let us agree that research in zoos can be classified

in another way, as having one or more of three or possibly four aims:

1) To add to biological knowledge. ("Biol")

2) To assist care and breeding of animals in zoos. ("Zoos")

3) To assist management and conservation of animals in the wild. ("Wild")

4) To assist the solution of human medical problems. ("Med")

Suppose we try to decide to which of these ends each of our six kinds of study are directed. We could make a diagram of it:

(Y = Yes)	1) "Biol"	2) "Zoos"	3) "Wild"	4) "Med"
1. Taxonomic	Y			
2. "Basic Observat."	Y	Y	Y	?
3. Reprod.-Physiol.	Y	Y	Y	Y
4. Veterinary	Y	Y	Y	?
5. Genetic	Y	Y	Y	
6. Behavioural	Y	Y	Y	
7. "Productional"	Y			

What we find, I think, is that the five main kinds of scientific study, 2. - 6., are contributing to biological knowledge in its own right, to the applied science of keeping and breeding wild animals, and to the management of wild populations.

I would add, concerning the obtaining of knowledge useful to man's medical care, that this (Defence 13d in my list, p 15 above, discussed on p 19), while unusual, can occur, as in some work concerning marmoset breeding. The particular example given by Jamieson (see p 414 above) seems indeed to merit his comment of "at best unimportant and at worst deplorable", but it is hardly, I think, typical (27). Other knowledge too obtained in zoo studies could no doubt occasionally be relevant to the biological study of humans. A striking example would be de Waal's chimpanzee study. Sadleir comments too on the possible relevance of domestic animal reproductive data to understanding human reproduction, and his words would be as applicable to wild animals presumably (28).

14.4 KNOWLEDGE OBTAINABLE FROM CAPTIVE STUDY

Is any knowledge only available from the study of animals in captivity rather than in the wild? The answer is Yes. I shall give just three examples of cases where it appears certain that significant information could not have been gained without keeping the animals concerned in captivity. In examples (i) and (ii) this is stated by biologists uninvolved with zoos.

(i) The fact that females in heat in Mongolian gerbil communities visit neighbouring communities to mate, returning to their own burrows where their young grow up under the care of their mother and uncles (29).

(ii) Details about the territory and behaviour of

slow-worms, about which "little can be concluded ... without keeping them in captivity" because of their being "so inconspicuous" (30).

(iii) The extent to which chimpanzees' jockeying for power, etc in their social relations amounts to "politics". A great deal was learnt about this (and apparently could not have been learnt in the wild, because of the extremely close observations needed on fully identified individuals through an extensive period) in a study of the Chimpanzee Colony at Arnhem Zoo in Holland, referred to above (31).

I admit that animal studies like (i) and (ii) would probably not usually be done in a zoo. Probably it is no coincidence that gerbils and slow-worms are both rather small: this is a reason for the convenience of captive observations (32). Zoos tend, for obvious reasons, to keep large animals (though gerbils and slow-worms are both, incidentally, highly convenient for and effective in zoo education). And perhaps it is the case that such large animals are likely to have a large range in the wild, so that it tends to be impractical to keep them in such a way in captivity that anything of scientific importance can be learnt about their large scale movements, or the organisation of their groups as it occurs in the wild, or of course how they find food in the wild. It does seem to me that most of the interesting and important recent discoveries about many of the kinds of animal kept in zoos - lions, tigers, gorillas, orangutans - have been made in

the wild. And it is true that, for example, apes and big carnivores were kept for decades before we learnt much about the organisation of their social groupings - which researchers have done by field studies. But that is not to say that useful supplementary work, or even comparable work such as that at Arnhem, has not been done in zoos. There are several other captive environments for particular primates which allow study of importance: for example gorillas at Antwerp, and at Howletts, chimpanzees at Taronga Zoo, Sydney, and at Edinburgh, and the Woolly Monkey Sanctuary.

And even if successful behavioural studies in zoos are a rather recent phenomenon, much veterinary information and "general observations", particularly of course on reproduction, have been obtained from or made in captive situations.

What I think I have shown is that it can be in principle useful to study animals in a captive situation, and, more broadly, in an artificial situation as contrasted with study in the wild. And sometimes captive or "artificial" study is essential for eliciting certain information or solving some particular problem. Of course studying animals "in captivity" is not synonymous with studying them in zoos, and zoos may often be unsuitable for various reasons. But they can be very suitable. This at least is clear.

This is not in itself to give a moral justification of any captive study, still less morally to justify all

zoos because some of them can genuinely assist the obtaining of new knowledge. It might still be the case that we should not have zoos; but at least we have to recognise that their disappearance would be a loss, and not only a minor loss, for scientific study. We have to be satisfied on other grounds that the keeping of particular animals in particular conditions is acceptable (see chapters 9 and 10); but if we are, then the above considerations surely help to persuade us that such keeping has a serious justification.

14.5 ZOOKEEPING AND SCIENCE

Most zookeepers would probably identify zoos' scientific work with their conservation work, accepting that zoos have a particular conservation role in the captive breeding of endangered species, and seeing their scientific role as helping towards that. In practise, in the process of keeping the animal and trying one's hardest to get it to breed one is probably going to learn and discover a good deal. And in fact this is a very real motive for finding out how the animal behaves and breeds in the wild. Just as knowledge of behaviour etc in the wild helps one to breed better in captivity, one can also learn from captivity in the process of attempting to duplicate what happens in the wild; obviously this is a very good test of understanding.

While the justification for this scientific approach is not a scientific but a conservational one, the

conservational justification may be only convincing if one is trying to go about one's challenge scientifically. By "scientific", I mean, roughly, a) taking a systematic and experimental approach, and b) being aware of and responsive to relevant scientific information. I recognise that breeding is an art as well as a science, and also that very human factors come in, like the relationship between the animal and its keeper. Formal scientific qualifications are no substitute for and no guarantee of keeping ability or success. But the fact remains that the keeper and the zoo itself must be scientific in some degree if they are to be at all conservationally credible, for example in the keeping of adequate records, as Jamieson notes, and they should be as scientific in their approach as they can manage, it being granted that different degrees of scientific approach will be required with different kinds of animal. For example, it may well be that the breeding of certain reptiles needs a very scientific approach, in that such an awareness of the importance of the various stimuli effecting the animal is needed, and such scientific sophistication in adjusting them satisfactorily is required also, that a trained biologist would be desirable either as keeper or as consultant. Just how important for science, and extremely difficult to attain, are some of the skills needed to keep and breed reptiles and amphibians successfully, is graphically, though sadly, illustrated in Koestler's account of the Austrian biologist Kammerer, who, earlier

this century, claimed remarkable results from his work with the Midwife toad. He apparently demonstrated a Lamarckian effect which, if confirmed, could have enormous evolutionary significance. Yet the testing of his results is probably out of the question, simply because of the rarity of Kammerer's own ability to keep and breed the animals through many generations (33). Obviously such skills as Kammerer's are exceptional, but clearly, in view of the scientific as well as other abilities needed in some animal keeping, there is a strong case for keeping such expertises available, even if not needed at the moment, in case of future need (see 11.5, p 330 above).

14.6 CONCLUSION

In some degree I am making a case for the scientific potential of zoos, rather than their present reality (though the reality is at least rather better, I think I have managed to show, than Jamieson makes out). So I think it important to appeal to zoos to work hard at captive breeding, at recording, etc, and this is partly because animals have rights (if humans do) or at any rate deserve our respect (see chapters 5 and 12): because, indeed, they are very like us in relevant respects (see chapter 4).

So we should regard it as irresponsible, even arrogant, to be keeping them unless we are:

a) doing our utmost to do it as well as possible (the animals are in our hands; we, as humans, have taken on the

responsibility of looking after them).

b) we are learning all possible from keeping the animals.

NOTES TO CHAPTER 14

1. Jamieson is no doubt right enough in commenting that most zoos do no science, but I think it an oversimplification to divide the science possible in zoos, as he does, into behaviour on the one hand and anatomy and pathology on the other (op. cit. (p 23 above, Note 18), pp 112-4).

2. This is well illustrated by work at Slimbridge. See P. Scott and the Wildfowl Trust, The Swans (London: Michael Joseph, 1972), p 24 (for the classification of swans by behaviour patterns in care of plumage) and p 227 (for the relevance of weights and measures for classification, and how one needs live swans for this in preference to museum specimens).

Study of behaviour patterns is also useful in working out the relationships of mammals, e.g. confirming the close relationship of the Celebes Black Ape to Macaques, and it is convenient to study such patterns in a captive group, even if one has to be aware of the likelihood of the animals' behaviour not being identical to that in the wild state (A.F. Dixson, "Observations on the displays, menstrual cycles and sexual behaviour of the "Black ape" of Celebes (Macaca nigra)", J.Zool.,Lond. 182, 1977, pp 63-84, espec. p 81).

3. For example, exact details of how Geoffroy's cats "are extremely particular in their feeding habits, and exhibit great dexterity in consuming certain parts of an an animal according to their own special tastes", described in G. Law and H. Boyle, "Breeding the Geoffroy's cat, Felis geoffroyi, at Glasgow Zoo", Int Zoo Yb 23, 1984, p 192.

4. R.F. Ewer, "Why study small mammals?", Int Zoo Yb 15, 1975, p 1 ff.

5. J.P. Hearn, "Research in the zoo. How does it help animals in captivity and in the wild?" in T.E. Gibson and D.A. Paterson (eds), The Welfare of Animals in Captivity, BVA Animal Welfare Foundation's Fourth Symposium, 13 May 1987, pp 28-30, espec. p 29.

6. Darwin, op. cit. (p 368, Note 8).

7. A.G. Searle, Comparative Genetics of Coat Colour in Mammals (London: Logos, 1968), p ix (the importance of breeders, and how mainly studied in domestic animals: "Similar colour varieties in a number of wild species are also mentioned, although their exact nature and mode of inheritance are usually somewhat obscure"; p 2 ("Only in the domesticated mammals .. is the choice of mates .. under man's control, so that genetic investigation of newly arisen variants is possible".) For an example of the

scientific interest of mutants produced by selective breeding in the Mongolian gerbil, which "is now being bred in sufficient numbers that a steady trickle of mutant genes are being reported", see B.D. Leiper and R. Robinson, "A case of dominance modification in the Mongolian gerbil", J.Hered. 75, 1984, p 323; see also M. Henley and R. Robinson, "Nonagouti and pink-eyed dilution in the Mongolian gerbil", J.Hered 72, 1981, pp 60-61.

8. G. Mace, "Captive Breeding for Conservation", Ratel 13, 2, April 1986, pp 62-64, espec. p 63.

9. Though a comment of Zuckerman's casts doubt on my view expressed here: he regrets the conservatism of his predecessor Peter Chalmers Mitchell in refusing or not seeking a Home Office licence, and thus preventing the zoo's continuing as the scientifically important institution it had been in the last century. Zuckerman would seem to be referring to the animals in the zoo's "menagerie" rather than animals kept in the Research Institutes (Zuckerman, op. cit. (p 21 above)).

See also Batten, op. cit. (p 24 above, Note 23), p 32 ff, for his view that there is much incompetent research in some American zoos, and that experimental research involving disturbance to animals in zoos is increasing.

10. Jamieson, op. cit., p 113 (lead poisoning in zoo animals as a model for study of the same condition in humans).

11. S. Zuckerman, The Social Life of Monkeys and Apes (London: Routledge and Kegan Paul, 1932).

12. L Harrison Matthews, "The Zoo: 150 years of research", Nature 261, 5558, 27 May 1976, pp 281-4, espec. pp 283-284.

13. P.B. Medawar, "Zoology" in A.E. Heath (ed), Scientific Thought in the Twentieth Century (London: Watts, 1951), pp 163-189, espec. p 164: "the behaviour of an animal in the laboratory... is certainly not less interesting than its behaviour out of doors, and is almost certain to be a great deal more informative."

P.B. and J.S. Medawar, Aristotle to Zoos, A Philosophical Dictionary of Biology (London: Weidenfeld and Nicolson, 1984), pp 82, 83: [in the 1920's and 30's] "Living organisms were relegated to the position of laboratory performers... 'ethology'... stands for a genuine revolution in biological thought."

14. Dixson, op. cit.; F. de Waal, Chimpanzee Politics (London: Cape, 1982).

15. J.L. Harrison, "Defaecation in the flying lemur Cynocephalus variegatus", Proc.Zool.Soc.Lond., Vol 133, Pt 2, Dec 1959, pp 179-180; J. Clarke and A.S.I. Loudon, "The effect of differences in herbage height on the grazing behaviour of latating Bennett's wallabies (Macropus rufogriseus rufogriseus), J.Zool.,Lond. (A), Vol 205, Pt 1, Jan 1985, p 537; J.Z. Young, "Observations on Argonauta and especially its method of feeding, Proc.Zool.Soc.Lond., Vol 133, Pt 3, Feb 1960, pp 471-479; Aspinall, op. cit. (p 313 above, Note 20).

16. E.g., Dixson, op. cit., p 81; de Waal, op. cit., p 36.
17. Rachels, op. cit. (p 23 above, Note 18), p 210; A. Jolly, The Evolution of Primate Behaviour (New York: Macmillan, 1972), pp 172 and 195.
18. Z. Veselovsky, Are animals different? (London: Methuen, 1973), pp 152-154.
19. Sadleir notes how most "detailed information on the effect of environment on reproduction comes from domestic species." "There can be no doubt," he adds, "that much of what has been discovered in domestic animals is directly relevant to feral species." (I presume he means wild species.) If we can learn about wild animals' reproduction from domestic animals it would be very surprising if we could not learn much about it from the study of various (relatively) wild animals themselves (R.M.F.S. Sadleir, The Ecology of Reproduction in Wild and Domestic Animals (London: Methuen, 1969), p vii).
20. D. Morris, "The rigidification of behaviour" in his Patterns of Reproductive Behaviour (London: Pather/Granda, 1972; first pub. Philosophical Transactions of the Royal Society, London, B, 251, pp 327-330), pp 631-636, espec. pp 634-636.
21. Harrison Matthews, op. cit., p 282; Belle Vue "proved a continuous source of material both to the Manchester Museum and to the Anatomical Department of the Owen's College, precursor of the present Victoria University of Manchester" (A.J.E. Cave, "An unrecorded specimen of the Javan rhinoceros (Rhinoceros sondaicus)", J Zool, Series A, Vol 207, Pt 4, Dec 1985, p 528). Of course this is a function zoos perform less the better they become, but it is responsible of them to ensure that the best use is made of their animals after death.
22. With regard both to dead specimens and "biofacts" there is obviously no clear line between zoos and museums - i.e. a zoo could pass material on to a museum, or it could keep it, in which case there would as it were be a museum in the zoo; museums can keep live animals, such as fish or bees; J. Delacour, The Living Air (London: Country Life, 1966), p 31: "The Paris Museum of Natural History... possesses a botanical garden, two zoos..."
23. The Zoological Society of London produces no less than six series of publications, three of them dating from 1830, 1833 and 1864 respectively: the Journal of Zoology Series A (originally the Proceedings), the Journal of Zoology Series B (originally the Transactions), and the Zoological Record. The three others are Nomenclator Zoologicus, the Symposia (from 1959) and the International Zoo Yearbook (from 1961).
24. Zuckerman, op. cit. (p 21 above), p 11.
25. Jamieson, op. cit., p 112; Hearn, op. cit., p 29.
26. Durrell, op. cit. (p 21 above), pp 149-152.
27. Jamieson, op. cit., p 113 (on aims of zoo research); A. Wiseman, "Human fertility project helps zoos", The Times, 6 Aug 1986 (work on marmoset breeding, which may

"contribute to a better understanding of some stress conditions affecting humans...")

28. de Waal, op. cit., pp 210-213; Sadleir, op. cit., p vii.

29. D. Macdonald (ed), The Encyclopaedia of Mammals: II (London: Allan & Unwin, 1984), p 677).

30. D. Frazer, Reptiles and Amphibians in Britain (London: Collins, 1983), p 179.

31. de Waal, op. cit., espec. pp 18-19.

32. Ewer, op. cit.

33. Arthur Koestler, The Case of the Midwife Toad (London: Pan, 1974), espec. pp 12-13.

Chapter 15

EDUCATION IN ZOOS

I shall use the word "education" in a rather wide sense, to mean worthwhile instruction, or learning, or almost any situation which produces some desirable extension of our mental faculties. I think education, to count as such, should not be trivial; still less can it be the inculcation of immoral attitudes or beliefs. Education is something we normally approve of, something that is valuable (1).

15.1 OBJECTIONS TO ZOO EDUCATION

A challenge, moral and otherwise, to zoo education could be mounted on four main counts:

[E1] Animals should not be confined in zoos even for educational purposes.

[E2] Any instruction or learning that occurs as a result of having animals available in a zoo may be desirable considered in its own terms alone, but it is devalued, or simply morally unjustified, in as much as it is occurring because of something unjustified - the confining of the animals concerned.

[E3] Any instruction or learning that occurs can be invalidated by the impression also given, even the wrong moral instruction that is also given, that it is

acceptable to confine animals for our convenience.

[E4] In any case the zoo as a "learning situation" is likely to be:

a) not very useful, e.g. because the animals are not in their natural habitats;

b) boring, because the animals are doing little;

c) misleading, because of the animals' artificial conditions and abnormal behaviour.

Perhaps some supplementary challenges or objections are worth adding:

[E5] It is much more important to interest British children and young people in our native wildlife than in exotic animals from abroad; zoos can give the unfortunate and inaccurate impression that our own wild animals are less interesting (2).

[E6] Zoo education tends to be a matter of "chattering children", more concerned with their "lollies or candy floss" than the animals, or "better organised groups... more concerned with completing [questionnaires] than... with studying animals with any degree of empathy or understanding" (3).

[E7] "Every zoo now seeks to make its entertainment respectable - and worthwhile - by giving it a veneer of education" (4).

[E8] Most people do not go to zoos to be educated, "and in any case the facilities offered by most zoos are lamentable" (5).

[E9] Many zoos "make no real effort at education" (6).

[E10] Most of the "educational benefits of zoos [could] be obtained by presenting films, slides, lectures... [or even] by exhibiting empty cages with explanations of why they are empty" (7).

15.2 THE OBJECTIONS CONSIDERED

I entirely agree with [E1] (p 432 above) that animals should not be confined in zoos for any reasons, including education, if by "confined" we understand "kept in a way which does not ensure their wellbeing". I think this moral challenge can be met on the lines I have attempted in chapter 7 (especially 7.4) and chapters 9 and 10. I also grant that, if we have good reason to think any particular animals in a zoo are not in a state of wellbeing, then both [E2] and [E3] follow; the most important thing on educational grounds, as simply on the grounds of our responsibility towards any animals we keep in terms of their welfare, is both that their conditions should be, and should be such as to be seen to be, satisfactory, and that other reasons for keeping the animal are satisfactory. I agree that if, let us say, the animal should, on conservation grounds, not be there at all, or if acquiring it involved immoral behaviour (of which a blatant example would be the killing of several other chimpanzees in order to capture one), then the educational use could not possibly compensate for such occurrences. This is where I agree with [E2]. It is perfectly possible for a situation to be valuable to us in terms of our

experience, but unjustifiable because of the ill-treatment to some animal (or human) which is involved. I touched on this in regard to Corbett's account of pursuing a tiger; the richness of his experience would not, in my view, have justified killing the tiger; but of course the tiger was not killed for Corbett's gain, but out of necessity to protect other humans (see 11.5, p 329 above). To vivisect animals (as Harvey did) to study the workings of their hearts would be (in certain respects) very interesting; as an educational exercise, such actions would of course be grossly immoral (8). But in the zoo case, my whole point is that we must justify the keeping itself of the animal by showing the degree to which such keeping is in the animal's interests. In some cases, in addition to an animal's being kept well, its being kept is justified on conservational grounds, or other strong grounds (e.g. where an animal has been rescued following injury, and its return to the wild is inadvisable on humane grounds); the problem of justifying taking animals from the wild I shall however consider in chapter 17.

[E3] may seem very similar to [E2], but the point here is the message being put across in the situation where the animal is, in reality or just apparently, not being kept well. I agree with [E3], but would note that this point can, I think properly, be "reversed". That is, where any animals concerned are clearly and obviously being well-kept, we are giving positive moral instruction (e.g., demonstrating that animals need to be looked after

properly) in addition to whatever other study may be occurring.

Provided that the moral challenge (of [E1], [E2] and [E3]) can be satisfactorily answered, as I believe it can in many cases (and where it can not, then educational considerations are just one additional reason why the zoos in question need to set right what is wrong), I suggest that the opportunity to see and study animals in zoos is educationally valuable in several ways. To have animals - whether few or many, individuals or species - there in front of you is clearly a great advantage in learning about them. You can observe their structure, proportions, colour and pattern, details of the hair or whatever the body covering is, details of the sense organs, shape and size of their limbs, and so on, directly. Most of this we might be able to see as well in mounted museum specimens, but the colours of such specimens fade, and living animals are not the same even throughout the year, still less throughout their lives. Observations of one characteristic of animals, their changeability, can be made much more obviously in a zoo than a museum. Other observations too are not possible at all in a museum. In a zoo we can observe how an animal moves its limbs, moves about, feeds, grooms itself, and in general how it behaves, including how it relates to its fellows.

To the comments in [E4] a) and c) (p 433 above), I would first recall a comment of the authors of a well-known 'A' level biology textbook, Grove and Newell:

"We cannot too strongly urge that for true appreciation, a living animal is preferable to a dead one, and a dead one is better than any drawing or written description" (9). At least a zoo does have real animals, live animals, and that is something. I would add that in some cases it would be in practise impossible to see those animals in their natural habitat (tigers are a striking example, which I enlarge on further in 16.3 below). Besides, many zoo enclosures do at least in some respects simulate the animals' natural habitats, and in any case information about or discussion of the animals' natural habitats is often provided by zoo education staff, or school staff, or by guide books, information sheets or labels. Again, confrontation with the animal itself is a splendid starting point, educationally, for appreciating its adaptation to its natural habitat. The captive conditions may not be all that artificial; where they are, they may not be adversely so. Likewise, the abnormality of zoo animals' behaviour can easily be exaggerated (see 14.1.6, pp 417-417 above), and it is a fundamental requirement of keeping animals well to endeavour to provide conditions which allow and encourage natural behaviour (see 9.3.4 and 9.3.5). (I shall comment on [E4] b) below.)

What Grove and Newell are emphasising in their comment is also part of the answer to the suggestion that zoo education could with advantage be fully replaced by the use of film and video (see [E10], p 434 above). No doubt for many of us, the marvellous developments in

natural history film-making in recent years have provided a whole new dimension to our understanding of the natural world. I particularly appreciated seeing, in Life on Earth, creatures like sea gooseberries, and Protopterus (a kind of lungfish), which I had studied long before, but never observed either in life or on film. The opportunity for us all to watch on television cheetahs or elephants or lemurs, in their natural habitats, in one way makes zoos educationally less important than in the last century. Films, indeed widely available illustrated books, have removed the urge (or need) that people had a century ago to flock to zoos (see chapter 2, for example pp 33-34).

But so far as study of animals is concerned, Grove and Newell's comment still holds. A live animal is better than a dead one, and a dead one than a book. And, we could add, an animal in its natural habitat is better than one in a zoo, and one in a zoo is better than one on film. Obviously film is a magnificent educational aid. But then Grove and Newell, as textbook authors, were hardly intending to imply that books too were not a magnificent educational aid. They were stressing the importance of actual animals for students of zoology - animals in the end, not books, being what zoologists study. Similarly (obvious though the point is) zoos provide actual animals on which student zoologists (and sometimes qualified researchers) can make real observations. In a radio discussion of zoos in 1984 Robert Robinson described watching a crocodile at London Zoo, and how it looked

stuffed; the keeper explained it wasn't, that if he waited long enough, he would see its eyelid move (which he did); this, Mr Robinson commented, was marvellous; it was not available on film (it was only a pity that children rushed by without appreciating such things) (10). In a zoo one is not having suitable observations selected for one by a film director. Films are not in all respects more accurate, because their directors have to select shots of animals in action, whereas in real life some animals, such as lions, spend "a great proportion of the day... sleeping and lolling around" in the wild as in zoos (11). One may say how dull the zoo is compared to a film. Sometimes it may be; but that is not to say that it is not also in some respects more accurate in the scientific instruction it offers. I have seen behavioural study of animals in captivity dismissed as too easy to be worth doing, but I suspect that only someone who had never tried it would think this. Of course it is going to be still more difficult in the field, sometimes seemingly almost impossible (12). But that is what makes the zoo so good as a halfway house. It is still extremely difficult to identify individuals (in a large group), to record behaviour systematically and interpret one's observations (13). This is why a zoo can provide such good learning exercises, if nothing more. One is coming up against the problems of realities in a way which somebody who merely watched films could never appreciate (14). (And incidentally, as David Attenborough himself has

demonstrated, some of the sequences in natural history series like Life on Earth have to be rigged - or even shot in zoos.)

To the comment that zoos are boring ([E4] b), p 433 above), and in some degree as a reply to several of the other objections also, I would respond with certain personal experiences. Certainly all the animals in zoos are not continually exciting, as indeed they tend to be on films (as commented on above). But when I read, as I have recently, that even young children are rather bored by zoos, I can't help recalling an occasion years ago when I took my six year old niece to Edinburgh Zoo. I do not know how much she learnt, if anything, but I do know that she was enormously excited at the prospect of seeing again her favourite "elephant seal", and that she maintained this level of excitement for hours while she rushed from animal to animal and I, just, managed to keep up with her. This same niece kept many animals as she grew older, and has now graduated in Ecology, which suggests that her early enthusiasm for the zoo may not have been unconnected with her continuing adult interest in the natural world. When critics emphasise the icecream and sweets, whose presence seems in their eyes to demonstrate clearly the frivolity and non-educational value of a zoo visit by young schoolchildren ([E6], p 433 above), I would reply that I can recall from my own experience occasions when I have given a guided tour to a party of, say, ten year olds, and we have observed all kinds of behaviour, like young

Barbary rams challenging each other, peacocks displaying, lemurs engaging in "stink-fights", and it was as obvious to their teacher as to me that the children's visit was worthwhile, that it was in no way deserving to be scorned as sub-educational. And when I read how zoos just do not offer any experience worth having, I have only to recall actual experiences of my own to know the at least partial inaccuracy of such a comment, experiences like observing dogfish and skates at London Zoo, and appreciating the grace of their swimming, as well as the precise way in which their gill openings operated, the grace too of turtles at London and in the Edinburgh Zoo aquarium, the beauty of enormous fanworms at the Schonbrunn Zoo in Vienna, and of ring-tailed lemurs in the Charles Gore Pavilion at London, and the fascinatingly careful, slow climbing of the pottos and lorises in the Nocturnal House below. These are just odd examples of experiences I know I found valuable, and, while I cannot to anyone else prove their worth or even that I am not lying in claiming to recall them, they represent for me indisputable evidence that some zoos do offer some valuable experiences. I would not bother to mention them, did not some critics of zoos not merely seek to condemn them morally, but also attempt to persuade us that zoos are so insufferably boring as not to be worth going to in any case.

It is claimed too that we should not be raising children's expectations unduly, for they have no right to see tigers for example - with which I would agree (see

5.2.4, p 116 above); what I am saying is that if the tigers are in a state of wellbeing in a zoo, then seeing them can be a valuable experience for children and others. It may then be added that it is much more important for children to learn about and appreciate their own wildlife ([E5], p 433 above). I agree that to see a weasel or a badger is a marvellous experience, and that to appreciate such animals, our own wildlife, is, probably, more important than appreciating exotic but not more interesting animals from far countries. But the two are not exclusive alternatives. If our own wildlife is the more important to us, that seems no reason for depriving children and others of the chance to experience something else that is also good, if less important – and of similar biological interest. It also of course happens to be the case that several British mammals are difficult to see. Thus, indeed, those who manage to see them are likely to be having, probably partly because of the efforts they will have had to make, a richer experience (see 9.6.4, pp 258–259 above). Of course we should encourage such real natural history. However it seems to me significant that the former director of Palacerigg Country Park near Glasgow, David Stephen, himself a distinguished field naturalist, chose to have, at Palacerigg, some enclosures (containing, as one would expect, fine habitat reconstructions) to give visitors a fair chance of seeing such animals as wildcats and badgers. He knows a great deal about the wild lives of such animals, including (no

doubt) just how unlikely most of us are to see them without such assistance. Thus I do not see that the comment that our children should learn about our own wildlife, even though it is a sentiment we should all agree with, in some way rules out zoos as also having a useful educational role to play. Of course in Africa our exotic animals are their (relatively) local wildlife. Jordan and Ormrod have illustrated how much, in West Africa for example, a zoo gives people, who would never be able to otherwise, a chance to see and appreciate their own wildlife (15).

One objection, from a Sunday Telegraph journalist ([E7], p 433), seems little more than a sneer. Perhaps the Sunday Telegraph also, one could respond, "seeks to make its entertainment respectable - and worthwhile - by giving it a veneer of" - news and serious comment, perhaps? There is, however, a serious point in that zoos, like the Sunday Telegraph, have various motives, among which is that of surviving, which itself necessitates endeavouring to be successful in business terms. It is probably true that many zoos have started education departments to help to justify their existence, to try to appear more serious places, perhaps even to make money. This does not mean that the work of those departments is thus prevented from being educationally useful or worthwhile. I agree that the zoo owners' motivation could be relevant to the quality of their educational provision; but clearly a firm business attitude does not exclude - it may even make more likely -

the offering of a "high quality" educational product.

Such objections as [E8] and [E9] (pp 433, 434) are surely implying that zoo education as a whole can be criticised or even condemned on the grounds that some zoos' educational provision is poor. But the fact that some schools are very good is not affected by the fact that some other schools are very poor. Even if it is true that a great many zoos' educational provision is not very good, or even very genuine, the fact remains that certain zoos are clearly doing good educational work. At any rate, against these particular objections, I think one can properly use Defence 10 (p 15 above, discussed on pp 17-18).

Objection [E8] also included the comment that most people do not go to zoos to be educated. In some degree one can make the same reply, Defence 10, to this. One reason why I included some examples of what I have found for myself to be worthwhile experiences in zoos was to indicate that such experiences are possible. It also seems rather likely that a great many people besides me find some parts of some zoos equally rewarding. If most zoo visitors are not taking full advantage of their opportunities for learning and for rich experiences, this is probably just as true of, for example, museums - especially free ones. It also does not matter to the animals, as neither do the ice cream and the sweets, provided they do not find their way into animals' enclosures. As zoos receive a very wide range of visitors,

obviously including many without special interests or qualifications, it does not seem to me unduly disturbing, though obviously disappointing, that a study of what visitors to zoos learn, or of how well-informed they are about animals, should reveal a level of animal knowledge only a little above that of the geneal public, and much less than many with a special interest or involvement in the countryside (16). But what I think is very impressive, and very important, is that the same researcher, Kellert, has also found in zoo visitors "a great concern for issues of animal welfare and rights as shown by a high score on the moralistic scale and a low score on dominionistic", and a "very high [score] on the humanistic scale", where "Humanistic" means "primary interest and strong affection for individual animals, principally pets..." (17). It may well be that zoo visitors as a whole are not well informed about animals, that they have false ideas about them, but they apparently care about them and about their interests very highly, and appreciate them as individual living beings. This seems to me a very strong indication of the educational value of zoos both for the general public and for children, not necessarily biologically or academically in any way, but in terms of the stimulus zoo visiting gives to the development of their sympathy with and their appreciation of animals. Just how much the simple chance to see animals and get close to them means to a great many people is demonstrated by a finding in a recent visitor study at Calderglen Country Park in East Kilbride. It

turned out that a far larger proportion of the Park's total visitors than anyone had suspected, about 80% in fact, visited the children's zoo in the course of visiting the Park – far more than visited the Park Interpretation Centre, which had been assumed to be a greater attraction. One old age pensioner visited the children's zoo every day to feed a particular donkey (18). Such findings, and some of those of Kellert, show, I think, how [E10] (p 434) is missing the point; biologically films, for example, could in some ways replace zoos, though by no means in all ways, as I tried to make clear above in regard to behavioural studies. But so far as the value of meeting animals is concerned, films are quite irrelevant; they offer something fine, but little to do with what for many zoo visitors – whether general public or schoolchildren – is the most valuable element of their visit, the chance to meet (in some degree) and appreciate real animals.

This aspect of zoos I shall look at further in the next chapter. I have said nothing of the work of zoo education departments as such. Obviously there is a great deal I could say of their work, for example about how zoo education can contribute to environmental education, and to a wide range of subjects, such as art, geography, history and English as well as to biology, and how it can contribute too at a very wide range of academic levels (19). But, unlike what seems to be implied by [E8] and [E9], I think that the most important part of zoos' educational provision is simply their making available to

children and adults real animals to observe. I must also emphasise a point already made (see 13.9, pp 398-399), that having some degree of direct contact with animals can well stimulate people's concern for and willingness to support the conservation of animals' wild habitats. This is I think indicated by Kellert's findings about zoo visitors' high level of concern for animals. This is likely to include, at least if visitors are given some guidance and encouragement (such as a zoo and its education department are in a position to do), concern for the protection of wild habitats. It seems reasonable to emphasise how much appreciation and concern for, say, rhinoceroses and tigers are likely to be stimulated by some kind of actual contact with them. Of course film and television can help enormously. It just seems to me the case that zoos, in offering a kind of direct contact with animals, can make a contribution too.

NOTES TO CHAPTER 15

1. R.S. Peters, "Aims of Education - a Conceptual Enquiry" in R.S. Peters, The Philosophy of Education (London: OUP, 1973), pp 11-29, espec. pp 15-16.
2. V. McKenna, "Past, Present - Future Indicative", op. cit. (p 23 above, Note 18), p 36.
3. D.A. Paterson, "Editorial", Humane Education Journal 2, 1, Christmas Term 1979, pp 2-3; W.N. Scott, "UFAW's Point of View" in UFAW Symposium, Wild Animals in Captivity (Potters Bar: UFAW, 1973), pp 94-97, espec. p 97.
4. D. Hart-Davis, "How zoos could keep wild animals in their place", The Sunday Telegraph, 12 July 1987, pp 11-12.
5. C. Lever, letter to The Independent, 25 Aug 1987.
6. Jamieson, op. cit. (p 23 above, Note 18), p 111.
7. Jamieson, op. cit., p 112.
8. See William Harvey, "Chapter II: Of the Motions of the

Heart, as seen in the Dissections of Living Animals" in A. Rook (ed), The Origins and Growth of Biology (Harmondsworth: Penguin, 1964), p 176 ff.

9. A.J. Grove and G.E. Newell, Animal Biology (London: University Tutorial Press, 1957), p vii.

10. Robert Robinson, Radio 4, 19 May 1984.

11. Markowitz, op. cit. (p 265 above, Note 32), p 196; Markowitz also comments on wolves' pacing actually being typical wild behaviour.

12. E.g., van Lawick-Goodall, op. cit. (p 96 above, Note 54), p 34: "The more I thought of the task I had set myself, the more despondent I became".

13. De Waal, op. cit. (p 429 above, Note 14), pp 31-32.

14. I do not of course mean to imply that the use of film or video is not itself an enormous aid to scientific study. But here one is using the film as an aid to understand what one observes; not selecting lively material in order to construct a fine natural history programme. In no way of course, either, am I denigrating the skill and educational possibilities of modern nature progammes. But watching them is not the same as making one's own observations.

15. Jordan and Ormrod, op. cit. (p 24 above, Note 23), pp 66-67.

16. Jamieson, op. cit., p 111, referring to S. Kellert, "Zoological Parks in American Society", paper delivered to American Association of Zoological Parks and Aquariums, 1979.

17. W.R. Turner, "Observations on Conservation and the Zoo Visitor", Journal of the International Association of Zoo Educators, Proceedings, 1986 Conference, No. 17, 1987, pp 29-32, referring to S. Kellert

18. Calderglen Country Park Visitor Survey 1986-1987 (East Kilbride District Council, in conjunction with Centre for Land Management Systems, Strathclyde University, with assistance from MSC, 1987).

19. Jan Hatley, "The Role of the Zoo in Environmental Education today", Review of Environmental Education Developments, Journal of the Council for Environmental Education, Vol 12, No 1 (n.d.), pp 3-6; Malcolm Whitehead, "Zoos are for learning too: education and interpretation", Biologist 31, 2, April 1984, pp 115-118.

Chapter 16

ENRICHMENT OF THE HUMAN ENVIRONMENT

There is one further role or multi-role of zoos to recognise, and this is that of a place for viewing, meeting, having contact with, and being close to animals. It seems to me that zoos, alongside many other things such as parks in cities and trees in city streets, and flowers and aquariums in homes, are ways in which man enriches his own environment.

16.1 INVOLVEMENT WITH ANIMALS

First we need to appreciate the extent to which contact or involvement with animals as such seems to be important to many people, though of course not to all. The traditional fondness of kings for horses and lions is surely only partly to be explained as a fondness (shared with many other people) for status symbols (1). They also, I suggest, simply like having animals around, as obviously applies to our own royal family, and I would presume applied to Kubilai Khan too. (If it did not, he must have found it, one would think, a trifle unnerving having lions and tigers strolling around the palace, as apparently reported by Marco Polo (2).) If I am wrong here, why should they choose animals as status symbols rather than

something else? I suggest the situation is rather that almost any activity or hobby which includes having or collecting items lends itself to having items which are, or are regarded as, of better quality than others of the same kind. So within any society of interested humans, "status symbols" emerge. Animal keepers of any kind tend in this direction. Any of the royal and the wealthy who "go in for" animals naturally select those regarded as more expensive or exclusive. But if I am right, and no doubt tradition comes into it also, then the vast numbers of royal beasts down the centuries, even the millenia (see chapter 2), are striking evidence of a widespread human fondness for animal involvement. I think Cherfas is right to see a main attraction of hunting as the animal involvement it provides. For example fox-hunting as a method of controlling foxes costs about five hundred pounds per fox. Whether or not fox hunting is unnecessary or cruel, its mere expense indicates that it must have some extraordinarily strong appeal and the involvement with horses and dogs seems a most likely part of that appeal (3). I suggest that involvement with animals is also a large part of the appeal of horse racing, of the keeping and breeding of (for example) budgerigars, mice, fish and all the other creaures with their own Fancy devoted to them, and of course the enormous degree of dog, cat and other pet or companion animal keeping (4).

16.2 ON ZOOLOGICAL AND OTHER GARDENS

Next, it is worth considering the term "zoological garden(s)" from which of course "zoo" is derived (see p 43 above, Note 48). Gardens were, I understand, a Persian invention, and the Greek "paradaisos" was first used by Xenophon of Persian parks and pleasure gardens (5). Even if Xenophon was referring to hunting parks, the concept of garden as it then developed in Europe seems essentially to be a cultivated bit of nature that you enjoy being in, that is peaceful, relaxing, and beautiful (6). Furthermore, though plants are the first essential, it is not only normal to find animals there, most obviously birds, but it has long been traditional to introduce animals, such as peacocks and "ornamental waterfowl". C.S. Lewis was reminded by Whipsnade of Eden or Paradise, and of course Eden traditionally contained animals (7). As Milton (with touches of Isaiah's vision of predator and prey at peace) portrayed it,

> "About them frisking playd
> All Beasts of th'Earth, since wild, and of all chase
> In Wood or Wilderness, Forrest or Den;
> Sporting the Lion rampd, and in his paw
> Dandl'd the Kid; Bears, Tygers, Ounces, Pards
> Gambold before them; th'unwieldy Elephant
> To make them mirth us'd all his might, and wreath'd
> His lithe Proboscis;" (8)

Milton observes how the beasts of the chase were at peace like all the others in Eden, and I think it is fair to give at least credit to the selection of "garden", essentially to us a symbol of humans and nonhumans too at peace, as part of the designation of the Zoological

Society's animal collection in 1826. At the very least this was a place where the animals were going to be safe from being hunted or baited. It was made clear to visiting equestrians that whips as well as horses were to be left outside, and it seems likely that the "leafy, quiet surroundings and the happy way in which the animals responded was at.. utter variance with the cracking whips, flares and 'barkers' hitherto associated with creatures from distant lands". Animals were not an attraction even then merely because of the absence of attractions like films. A kind of very popular "proto-film" was already available in London: the "Diorama", dissolving painted views of various great architectural sights, and the "Colliseum", which showed a changing panoramic survey of London (9). Thus the success of the Zoological Gardens in the face of such rival attractions tells us something of the special attraction of animals.

16.3 ON REAL PLANTS AND ANIMALS

Gardens contain real plants; not, that is, plastic ones. Whatever gardens do for us, presumably the plants we take into our houses, or the trees which line some city streets, do for us also, no doubt in a lesser degree. But do they - the trees, for example - have to be real to do this? This question became of practical importance in Los Angeles in 1972 when nine hundred plastic trees were erected, presumably because the atmospheric pollution threatened real ones (10). Would anything be lost? Real

trees produce moisture and ease the effect of very hot weather, and they absorb dust and noise, so plastic trees clearly would not be a good physical substitute, even if they satisfied us mentally or spiritually. Perhaps in theory an artificial tree could be produced with all a tree's physical properties (so far as they were known) which could affect human beings. Would we still be losing out with the imitation? This I presume could depend on whether we noticed the difference, though the possibility or likelihood of our knowing they were artificial just because we were told so can not be left out of the issue. If we lost out just because of being told, though we would not have noticed otherwise, this could still be a real loss, if only in the way that gazing entranced on (as we thought) the 15000 year old Lascaux Cave paintings (see chapter 12, pp 399-400 above) and then being told they in fact were not the originals, though we would not have guessed, would make a difference (11).

Many of us, anyway, strongly prefer real plants to plastic ones, and surely for sound reasons. What of plastic animals? These seem even worse, though Disney World "audio-animatronic elephants" are a fine demonstration of technical wizardry if you like that kind of thing (12). Iris Murdoch and Mary Midgley have noted the merits (for us) of real kestrels over against plastic ones "going up at carefully randomized intervals": suddenly seeing a kestrel could restore our mental wellbeing, but if we either think of the kestrel merely as

a device of "mental hygiene" or if it actually were a computerised model set up for the purpose, then the whole point would be lost, and it would not have the reviving effect on us (13). There is surely no question both of the special effect that animals can have on us, and on the fact that this is somehow connected with the animals' being independent of us, that they are living their own lives, and are not existing merely in order to have such and such an effect on us.

I do not dispute that there is something particularly admirable about animals living a free existence in what is (no doubt to varying degrees in different cases) their natural environment, and that it is a sight of such an animal (Iris Murdoch's kestrel, say) which can most obviously and perhaps most powerfully uplift or refresh us. I strongly suggest however that our companion or pet animals, and any animals that we keep or have contact with, can in some degree have this special kind of effect on us too. It is not the sort of thing probably which the people concerned put into words very much. They are likely to take it for granted in many cases. And there is evidence that keeping dogs or cats, for example, can lower blood pressure, and be beneficial particularly to depressed humans, something which we may be aware of but be very far from fully understanding, or even not be aware of but still perhaps benefit from (14).

I think animals in zoos can have this effect on us too. There is the problem (as with some of the examples I

have just mentioned of animals that people keep), that animals in zoos are not living their natural lives or if in some degree they are (and the possibility as well as the desirability of working towards such ways of animal keeping were issues I was concerned with in chapters 9 and 10), they are clearly not living (by definition) in their natural environment. And even if their conditions simulate or substitute for their natural environment very effectively, this is only because of our human management: the animals are living, as it were, by our favour and in the state we have arranged for them. However, I do not think this makes very much difference. Even a horse is a different kind of being from ourselves, in a way something "other", something that is closer than us to the natural world, even though we are visiting him in a stable. I do not say that a wild horse would not be still better, even a great deal better; but we could not get close to the wild horse, and most certainly we normally could not get close to a tiger in the wild. A journalist recently visiting Corbett Park, for example, had still not seen a tiger after eight hours on elephant back for the purpose, and Prince Philip, visiting another park, probably would have been no luckier had not his royal status ensured scouts out all night in land rovers seeking tigers (15). I have been told of a Japanese film crew which arrived by arrangement at Chitwal National Park to film tigers but had still not set eyes, still less a camera, on one a fortnight later. That is, in regard to some animals,

meeting them in the zoo and in the wild are not alternatives. Most of us will meet them (and be, sometimes, refreshed or enriched by the experience) in the zoo or not at all.

And even though zoo animals are being looked after to a great extent, rather than looking after themselves, they still are in some ways living their own lives, even if it is just getting their respective kinds of food, being washed, or having their toenails trimmed, etc, and in particular of course breeding (in some cases), or (if I can put it this way, because I think it is of particular significance) being born, and eventually (or all too soon, in some cases) dying. In other words, life in the zoo is going on; and more precisely, the individual lives of a great many creatures, some of them very different from each other as well as from us, are going on. This is part of the ordinary interest in new births at the zoo (which newspapers make good use of). I think also it is a kind of awareness of nature, especially the births and the deaths, something that those of us in towns are likely to be much less well aware of than those in the country, a dimension of experience which E.B. White gets across in his book Charlotte's Web, a story about a farm pig's friendship with a spider called Charlotte, who finally dies, her friend's grief being a little eased by meeting briefly (before they "parachute" away) the vast number of Charlotte's children who emerge from the cocoon she left behind (16). Living and dying is part of life on the farm;

I do not think it fanciful to observe that this fact, obviously true equally of a zoo, is part of, if no more, its educational value, its potential richness for everybody, but especially those in cities.

Of course you are going to get this perhaps still more in the country, or better still in the wild, in wilderness areas, where you may be aware of a myriad organisms living their lives, even perhaps feel

> "..the sentiment of Being spread
> O'er all that moves and all that seemeth still.."
> and "the joy...
> Communing in this sort through earth and heaven
> With every form of creature..." (17)

But you may meet nature too, if in a lesser way, feeding the hens or looking after the pigs (I am not thinking of intensive systems), or cleaning out the camels, hosing the elephant or feeding the cheetahs: people (in many cases) work in zoos because they, too, like contact with animals. And merely seeing the animals, or perhaps meeting them (which is not quite the same), offers some contact with nature too. Many naturalists have, like Konrad Lorenz, found it rewarding to keep animals. Even Peter Singer, a self-confessed non-animal-lover, though a magnificent exponent of their claims to justice, mentions how becoming a vegetarian and growing his own vegetables "brought me into closer contact with plants, the soil, and the seasons" (18). There are innumerable indications that looking after animals does something very similar. This is not in itself a justification for keeping animals, still less a justification for eating meat. But it is a fact

that we should recognise.

16.4 COMMUNITIES OR PRISONS?

But is my picture of a zoo as an acceptable community of animals as well as humans more than a sentimental whitewashing of the true situation? It was all very well for A.A. Milne to present his child's eye view of the zoo as an exciting place for meeting animals. But were not the animals themselves "pathetic prisoners" (19)? Recent criticisms emphasising how prison-like still are many zoo enclosures are reiterating comments made by Galsworthy of the London Zoo lion house and by Saki of the Mappined Terraces (with a summary of the animals' real needs in behavioural terms which astonishingly was written over seventy years ago) (20). Of course there have been enormous improvements in this country, as the Mappined Terraces were a far-reaching development in their time (though not good enough for Saki), but not everywhere either in this country or abroad. The tiger cages at Rome Zoo were recently described as bare prisons by two veterinary students (21). Cages in older menageries were no doubt even worse, and in some cases until comparatively recently, as we saw in chapter 2 (p 33 above). Of such cages, bear pits and so on, one can explain the problems that give rise to them, but one cannot justify their use, except perhaps in some cases as holding cages for short periods. So there is a prison-like element in some zoos which has to be recognised.

But it is possible to keep animals, and even powerful, dangerous ones, in very different enclosures, such as those of Howletts (e.g., for gorillas and tigers), Marwell's (for ungulates, especially), Whipsnade's (e.g., for ungulates, elephants, and lions). There were, at least in some degree, redeeming features of many older zoos also. There was another side to the older London Zoo, and even to menageries like Bostock and Wombwell's. At London there were the animals' relationships with their keepers, not least the large cats (indeed, even at the Tower Zoo). This was not enough compensation, but it was something. Elephants, camels, llamas gave rides and met the public, and led active lives (see p 35 above). Elephants not only met the public at London, they even (it seems to me) joked with them (see p 89 above). At least one man provided enrichment for wolves (p 35 above). I am accepting that, where such activity is possible, work such as horses engage in is a good thing for other animals (see 9.3.5, p 228 ff). C.S. Lewis not only appreciated the wallabies at Whipsnade; he also appreciated the bears, so much so that a tame bear appears in his <u>That Hideous Strength</u>, a "great, snuffly, wheezy, beady-eyed, loose-skinned, gor-bellied brown bear" called Mr Bultitude, obviously based on a bear he knew (and called Bultitude) at Whipsnade (22).

There was another kind of contact, now outlawed in British zoos, that of feeding the animals. This is rightly objected to now because of what we know of the harm done

to animals' health by uncontrolled public feeding. This is unavoidable, but a pity because offering an animal a present, such as food, is not only a way in which a human can indulge himself. It is a natural way of establishing a relationship with an animal, as well of course as producing some behaviour which is interesting to watch:

If you try to talk to the bison he never quite understands;
You can't shake hands with a mingo - he doesn't like shaking hands,
And lions and roaring tigers hate saying, "How do you do?" -
But I give buns to the elephant when I go down to the Zoo! (23)

I say a "natural" way because I think members of various species sometimes communicate among themselves in this way. It is also possibly innate in humans. In its time, feeding, I am suggesting, was a valuable activity in the zoo (even though we now know how bad it was for animals' health (24)). I think that R.J. Wheater, Director of Edinburgh Zoo, is right in suggesting that handling of stick insects, contact with tame boas and so on, are the acceptable modern substitute for the former animal contact through feeding.

At its best I think we can have a situation in a zoo where with many of the animals we can enjoy a relationship approaching that which we can have with a companion or pet animal. Of course this will never be possible with all, and I do not say that it would be necessarily desirable with all if it were possible, because we need to balance the value of such a relationship with an obviously tame

animal with the need to prevent animals in zoos becoming too dissimilar from their wild counterparts. There is a real problem here, but I suspect it is not an overwhelming one, not least because I think that the differences even between wild and domestic animals are less substantial than often supposed (see chapter 8, especially p 190, and 13.7, especially p 391 ff). Be that as it may, I think that where it is possible, this is one way in which animals can be kept acceptably: where they are no doubt trained in varying degrees, have contact with members of the public as well as zoo staff, and have plenty of activity. Of course, their enclosures must also be of high standard. But is the relationship with humans in fact a valuable one? Is not the only admirable state for an animal a wild one? I do not see why this should be so if one is going to grant that our relationship with a domesticated animal can be a valuable one. It would be difficult to dispute that this was so in at least one case, that of dogs. But if our relationship with dogs can be such, why should not a relationship with some other species, a relationship just a little like that of human and dog, be valuable also? Lewis went so far as to regard the state of an animal living at close quarters and peace with man as the ideal one, as portrayed with Mr Bultitude (25). I do not agree with him that even such an idyllic state as this would be superior to the wild state, but I think Lewis is right, even so, to emphasise the remarkable and special nature of the relationship possible with an

animal such as a dog, a relationship possible, I believe, in some degree too with a relatively wild animal in a zoo. I think such a relationship can be valuable to the animal as well as to the human, as also I think a comparison sometimes made between the animal in good captivity and man in a civilised state is in some degree valid (26). Clearly zoo animals (and this will apply even where they have little relationship with their keepers or anyone else) at least have medical and other protection, which is a substantial advantage of their state, even though they require even more conditions of captivity which fulfil their needs, especially that of meaningful occupation (see 7.1 especially, pp 157-158, and chapter 9, especially 9.3, p 209 ff).

NOTES TO CHAPTER 16

1. Cherfas, op. cit. (p 21 above) p 17; cf also J. Serpell, In the Company of Animals (Oxford: Blackwell, 1986), p 120 ff.
2. Loisel, op. cit. (p 41 above, Note 10), Vol I, p 38, see also Serpell, op. cit.
3. Cherfas, op. cit., p 22; Carroll, op. cit. (p 343 above, Note 29), e.g. pp 169-176.
4. See, e.g., Wilkes, op. cit. (p 149 above, Note 24); Green, op. cit. (p 406 above, Note 40).
5. The Shorter Oxford Dictionary, under "paradise".
6. Consider Coleridge's Xanadu, perhaps, though the "sixteen miles of park-land" described by Marco Polo contained deer sometimes hunted by the Khan with a tame leopard (Marco Polo, The Travels (Harmondsworth: Penguin Books, 1958), p108); Bacon's "On Gardens" is almost entirely concerned with practical advice on how to lay out a garden so as to get the maximum pleasure from it; cf K. Clark, Landscape into Art (Penguin, 1956), p 20 (on gardens).
7. W.H. Lewis (ed), Letters of C.S. Lewis (London: Bles, 1966), pp 154-155; C.S. Lewis, Surprised by Joy (London: Bles, 1955), p 223.
8. Milton, Paradise Lost, Book IV, 340-347; but see also Thomas, op. cit. (p 42 above, Note 29), p 288.

9. L.R. Brightwell, The Zoo Story (London: Museum Press, 1952), pp 15 and 17.
10. L.H. Tribe, "Ways Not to Think about Plastic Trees, New Foundations for Environmental Law", Yale Law Journal 83, 1974, pp1315-1348.
11. R. Elliot, "Faking Nature", Inquiry 25, 1982, pp 81-93.
12. See Cherfas, op. cit., p 225 and H. Hediger, Man and Animal in the Zoo (London: Routledge and kegan Paul), p 274.
13. M. Midgley, Beast and Man (Hassocks: Harvester, 1979), p 359, discussing a passage in Iris Murdoch, The Sovereignty of Good (London: Routledge and Kegan Paul, 1970), and quoted in "Editorial: Tyger and Kestrel", Philosophy 53, 1978, p 438.
14. Serpell, op. cit., pp 76-86 and 98-99.
15. It may be we get something different from animals close to us: i.e. knowing them almost as people, instead of as "other" and "wild"; but if so this is also a valid kind of knowledge and/or experience of them.
M. Hamlyn, "On the trail of a tiger hunter", The Times, 7 Feb 1987.
16. E.B. White, Charlotte's Web (Harmondsworth: Penguin/Puffin, 1963; first pub. Hamish Hamilton, 1952).
17. Wordsworth, The Prelude, Book 2, lines 401-2 and 410-2.
18. Animal Liberation (London: Granada, 1977), p 10 and p 182.
19. To use a term Stephen Clark applied to monkeys he noted in a "provincial zoo" by contrast with the almost independently living monkeys at the Woolly Monkey Sanctuary (op. cit. (p 23 above, Note 8), p 37).
20. Galsworthy, op. cit. (p 22 above, Note 2); Munro, op. cit. (p 22 above, Note 2).
21. "Speakers' Corner", WWF News 45, Jan/Feb 1987.
22. C.S. Lewis, That Hideous Strength (London: Pan, 1955), p 97; W.H. Lewis (ed), op. cit, pp 154-155: "I have had another visit to Whipsnade... Bultitude was still in his old place..."
23. A.A. Milne, At the Zoo, from When We Were Very Young (London: Methuen, 1965; first pub. 1924).
24. For nursery school children's giving presents, see N.G. Blurton Jones, "An Ethological Study of Some Aspects of Children in Nursery School" in D. Morris (ed), Primate Ethology (London: Weidenfeld and Nicolson, 1967), pp 347-368.
For ill effects of public feeding, see p 161 above, and Cave, op. cit. (p 183, Note 24).
25. C.S. Lewis discusses this in The Problem of Pain (London: Collins/Fontana, 1957), espec. p 126 ff; Lewis was rebuked by Evelyn Underhill in a letter for apparently suggesting that the nature of domestic cows, turned by man into mere milk-producing machines - this before the dawn of intensive husbandry - was for a moment comparable in splendour with that of the wild-living animal.

26. H. Hediger, Wild Animals in Captivity (New York: Dover), p 180; H. Hediger, Man and Animal in the Zoo (London: Routledge and Kegan Paul), p 73; but cf P.L. Broadhurst, The Science of Animal Behaviour (Harmondsworth: Penguin, 1963), p 48.

Chapter 17

CAPTURE, TRANSPORT AND TRADE

I have left this purposely to almost the end, not because it is of minor importance, but because I recognise that capturing an animal, i.e. from the wild state, is considerably more difficult to justify than keeping it in captivity. In the end I think the strongest justification for the latter is a convincing demonstration that the animal can be kept well in captivity; but indeed it cannot be kept well until it has adjusted to captivity (if it was not born into it) and has indeed, as it were, accepted that situation. Clearly we cannot justify the process of capture in this way; capture, even if carried out efficiently, is likely to be a highful stressful experience for any animal; and it seems, in any case, to be an improper invasion of its rights to autonomy, to living its own kind of life. I have argued that the happily captive animal is at least partially domesticated; this of course by definition cannot be so of the wild animal.

So my reason for leaving the matter until now has been so that I could make clear the strength, as I see it, of the conservational, scientific, educational and "environmental" cases for keeping animals in captivity.

For only these, plus the likelihood of the captured animal's ending in an adjusted state of captivity, can possibly be regarded as justifying the action of capturing it.

I have previously thought that only a strong need for conservational assistance to a particular species by captive breeding could justify capturing an individual member of it, or for that matter even keeping it (1). This might well be the only justification for capturing some highly endangered animal, but if we make it a necessary reason for capturing or keeping any animal we are put in a situation where we must depend on chance capturing activities by other individuals in the past, and not even necessarily just in the past - there might be situations where we accept that we can keep animal A because someone else X (of whose activity we must disapprove) has captured it and for some reason it has come into our hands. This could be ludicrous: it might well be that it was much better for us, or someone we have arranged with, responsibly to capture the animal rather than X; and it does not seem right so readily to take advantage of X's illicit doings.

Besides, if there is such a strong case for a scientific role and an educational role of zoos, it seems unreasonable entirely to outlaw the necessary preliminary act of taking an animal into captivity, except in those circumstances where it is endangered but able to be helped by captive breeding.

The essential provision, I suggest, for justified capturing is simply that it be responsible. This means that it must be done carefully and as humanely as possible by professional or trained people who have some official permission or certification and whose motivation is not simply that of helping themselves to an easy source of money.

We earlier saw (in chapter 5) how animals' rights are very similar to ours (or should be regarded as such), and it is individuals who have rights, not species, because it is individuals who can suffer and also find satisfaction in living. So even though our motives are conservational and entirely genuine, it still seems an intolerable invasion of animals' rights rudely to capture them. It may seem it could never, even in theory, be justified with humans.

But I suggest it could. It is possible to imagine situations, no doubt fanciful, in which the capturing of humans would be a morally admirable course of action.

Situation 1: Superior creatures from another planet capture a group of humans to protect them from injury from other invaders, or from death, taking them and setting them up in a new area, where they are able to settle down and live reasonable lives.

Situation 2: In war, a group of people are rescued against their will, or without its being possible to ask them, from a danger which they are not aware of.

Situation 3: Rescuing a South American tribe because

of a known threat to them, but which it is not possible to explain to them (no doubt because of language barriers), and setting them up in, say, a reserve in some safe place.

Obviously it is better if one can to avoid having to interfere with anyone's freedom in this way. One would need a very special justification, which would only apply in very special circumstances, but it is possible to conceive of such action being the right course to take. It would be like locking someone up for their own good, which would never normally be the right course of action to take but conceivably could in certain circumstances. Respect for a person's autonomy is very important, but it is not absolute, just as legal rights (or at any rate certain legal rights - I am thinking of capital punishment, as discussed by Stone (2)) are not absolute. It is possible to interfere with someone else's freedom for their own good, though of course such a course of action lends itself to abuse. There need to be safeguards.

So, with animals, how are they to reach the state of captivity? Either they are already there, so that their captive situation is a fait accompli, whether or not we approve of the way in which their or their ancestors' capturing originally occurred. Or we may do it now in a responsible way, and an example of the capturing of certain animals which I would regard as undoubtedly responsible is the taking of the last surviving free male condors, though of course this is a very unusual case (3). For capturing to be responsible, it would have to be done

competently and humanely, but it would also have to be done in the light of conservational responsibilities. But what I think we can not say is that it is categorically wrong to capture a wild animal, anymore indeed that it is categorically wrong to lie or to kill another human being (though of course it normally is).

But what of the reality of the capturing of wild animals? Domalain gives an appalling picture from his own experience of wild animal trafficking in south east Asia (4). He tells of gibbons and leopards and crocodiles captured by cruel means (caught in spiked pits or females killed for the obtaining of the young), then held for long periods in grossly inadequate containers, of disease killing many, of transport to Europe by irresponsible airlines, of delays and refusals to accept responsibility by those who had ordered consignments, of sick animals got rid of by unscrupulous traders as quickly as posible, of many dying even after reaching their destinations. The situation such as he describes it is clearly morally indefensible.

Even if Domalain's book is out of date (and it was published in its original French edition only twelve years ago), and even if it is inaccurate and exaggerated, or unrepresentative, or partly written out of a grudge against former colleagues or rivals, there is enough here to make clear the likelihood that trading in wild-caught animals causes a great deal of suffering. We know from elsewhere (see Chapter 6) what some people will do if no

check on their identities and their activities is made and no controlling regulations enforced. Indeed it is an extra complication that according to Domalain the operations are more clandestine than they otherwise would be, and therefore also more inhumane, because of the need to dodge the various conservation regulations. And of course it is obvious that transporting an animal, as well as capturing it, is going to be a stressful process even where the operation is done responsibly and with friendly human contact and comfort; where it is done by semi-criminals or at least persons interested only in the money, the suffering caused intentionally or by ignorance and lack of concern will clearly be much greater. (Not that we meet such occurrences only in SE Asia: I understand for example that the stress caused to literally millions of broiler chickens in British intensive systems caught up roughly at the end of their six week lives for transport to slaughter is very great.)

I am not concerned here about the conservational aspects, not because they are not important, but because:

a) The CITES regulations exist to control the trade in wild and particularly endangered animals.

b) If the regulations are being broken or are not strong enough, I do not think zoos are at all substantially responsible (see chapter 13). According to Domalain, they are, but if he is right they are clearly behaving illegally; they are also clearly disobeying the policy of, for example, the National Zoo Federation in

Britain and would face expulsion if found guilty of such actions. That is, I do not think any zoos (in Britain, at least) are committing this particular crime now; any that are are of course to be condemned, and if possible forced to close.

What I am objecting to is the trading in wild caught living animals on welfare grounds, whether or not there is in a specific case any conservational reason for not taking them. I am saying, that is, that animals, however common, should not be captured, etc, if this is going to cause them suffering. I am sure that Brambell would echo my sentiments, but he would explain that it was a matter of being realistic: CITES is a trade convention, not a welfare one. He makes the point that it is useful to have trade in a species controlled even just to ensure that the authorities can learn what is going on, so as to take action in the future if necessary. But again this is a conservational matter rather than a welfare one, and it is the latter which Domalain's book brings to our attention.

It seems to me that there is a case for the responsible catching of animals for conservational and in some degree scientific and educational purposes, but only where it is done by responsible expeditions. In theory it could be done by accredited catchers if there was some check on them, but it seems unlikely that there can be any effective check: we are in a murky world unpleasantly reminiscent of the slave trade. The catching should be done by proper expeditions for conservation reasons,

indeed, but still more for welfare reasons. The whole setup described by Domalain, which is a world away from the proper keeping of animals, should be outlawed. A proper expedition means that the animals are caught properly; that they are then looked after properly, and transported properly (e.g. as on Jersey's expeditions, and even on one as described by Attenborough in the 1950's - see chapter 5). Domalain concedes that a properly organised expedition is a different matter from the sort of thing he describes (5). I am in no way arguing that only zoos should be able to, or are capable of, responsibly collecting animals from the wild. I have commented earlier (chapter 10) on the skills of some private reptile enthusiasts, for example. An expedition organised by, say, the British Herpetological Association would, I am sure, be very responsible. But there should be firm checks, on welfare grounds, on the credentials of the collectors: they would need to be accredited with the BHS above, or some other reputable organisation. There is another qualification, and that is that in some cases, e.g with cockatoos in Australia, the birds are killed as pests, but their export for reputable collectors illegal. What happens as a result is not simply that all the birds are killed when some of them might have gone to be kept by genuine parrot enthusiasts, which would seem a happier fate for them, but that many are exported illegally by dealers prepared to transport them in appallingly inhumane ways. So in fact there is a good case, I think, in some

cases for certain strict conservational regulations against animal export to be relaxed, actually on humane grounds. So this means I can hardly condemn all trading even in wild caught animals. But there should be, as I say, requirements of licensing, on humane grounds, of the persons involved. I do not wish to appear to have an unrealistic faith in the effectivenes of licensing regulations. I am merely stating what seems to me clearly the moral situation: that uncontrolled trading can not be justified on welfare grounds. The economic difficulties of putting this into practise, the need of poor countries for money from exports of wildlife or wildlife products, I appreciate. But then I am not saying it should all be banned; I am saying it should be controlled, and on welfare grounds, not just conservational grounds.

The selling of an animal is obviously not necessarily bad in itself. Breeding dogs or any other animal and selling them can be a highly reputable occupation - indeed it is even more likely to be such if the animals are very valuable as great care is accordingly more likely to be taken over them. But when they are just caught and treated as expendable, and managed by people who do not know how to do it (and the job would be very difficult for anyone, even well-qualified and well-intentioned, to do adequately because of the number of different species likely to be involved) this is obviously quite wrong simply because it will lead to terrible treatment of animals.

So dealers should only normally be dealing in captive

born animals. If animals are to be taken from the wild they should be collected by zoo personnel themselves, or by members of reputable organisations like the BHS (above), or by persons known to them, or by responsible officials of the governments of the countries concerned. Zoos probably in many cases do choose to purchase animals (if they are purchasing them, for many animals are now exchanged or lent between zoos without money being involved) which are captive bred for various reasons, such as the likelihood of their being free of injuries likely to be incurred in capture, and because they are more likely to know which animals they are buying, and know their history. But it seems to me that they should make their policy very clearly to refrain entirely from any purchase of wild caught animals, quite apart from any conservation considerations, unless they indeed know and can vouch for the person in charge of the actual catching and transport of the animal.

NOTES TO CHAPTER 17

1. S.St.C. Bostock, "Zoo Education and the Ethics of Keeping Animals in Captivity", Newsletter of the International Association of Zoo Educators 6, 1981, pp 19-20.
2. Stone, op. cit. (chapter 5), p 10.
3. D. Houston, "Can the Californian Condor survive?", International Zoo News 195, Vol 33/1, Jan/Feb 1986 (reprinted from Oryx, July 1985), pp 5-8.
4. J.-Y. Domalain, The Animal Connection (London: Heinemann, 1978).
5. Domalain, op. cit., p 53.

Chapter 18

CONCLUSIONS

I have, I hope, shown that various kinds of relatively wild animals can be kept in zoos in what may reasonably be regarded as a state of wellbeing, and I have discussed the various criteria by means of which I think we can and should judge the suitability of their conditions. No doubt much zookeeping today would still, by a careful application of those criteria, be judged to be falling short of what our responsibility to the animals concerned requires. And of course humans are fallible, and sometimes indeed positively cruel, so the continuing of some substandard zookeeping is hardly surprising, and may be thought to be virtually certain so long as zoos continue at all. So ought we to solve the moral problem in practical terms, once and for all, and just abolish zoos? Is this the right moral solution, whether or not it would be a practical one?

I think not, for such reasons as the following:

1. Certain zoos are of a very high standard, both so far as the way in which their animals' needs are catered for, and, in some cases, in their conservational aims and achievements.

2. New ethological research is showing us, and is likely

to do so more and more. ways in which we can keep various relatively wild animals fully satisfactorily. The very moment when it is becoming feasible to keep many animals much better than they have been kept previously seems an inappropriate time for seeking to abolish the whole practice of zookeeping.

3. How short-sighted, too, advocating such a course might be only the coming years may reveal. I have tried to show the conservational roles of zoos as more various and also probably much more genuine and important than is often, perhaps, appreciated.

4. One conservational role arises from a very important (in a wide sense) educational role, that of encouraging and helping to develop in zoo visitors, adults and children, an empathy with and appreciation of other living beings. Even if this is a clearer achievement of zoos (see chapter 15) than their instructional role, it is still an important one (indeed more so even than the inculcation of academic understanding). It is a conservational role in as much as such empathy and appreciation can be a source of concern for the conservation of animals in their natural habitats.

I think therefore that the abolishing of zoos would mean the loss of much of great value, and much of great value in moral terms, in that such empathy and concern for other creatures is very much a moral matter.

It might be said that I am ignoring or forgetting the poor side, the exploitative side, even the cruel side of

zookeeping. I have not examined these at great depth partly because others, some of whom I have referred to, have already done that more than adequately, and partly because my aim has been to a great extent to present what I see as the genuinely good side of zoos, to make a moral case for them which I think deserves (as it were) to be made. I think the abuses involved in animal catching and transport are very real, and I have stressed the moral demand, as I see it, for strict controls on such catching and transport on grounds of welfare as well as conservation. It is fair, however, to emphasise too that a great deal of such abuse can not be blamed on zoos. But the strictest of controls are required, and I think they are desirable too for zoos themselves, and this because of the fact, as I emphasised in chapters 2 and 6, particularly, that the ability of some humans to engage in the most outrageous cruelty deprives us of any guarantee that it is safe just to trust to people's own decency and responsibility, even though in the case of many people, both professional and amateur, who keep animals such controls will be superfluous.

I think therefore that the critics of zoos should be listened to, and their criticisms complied with where we can not genuinely show them to be mistaken. On the other hand, I think there is a danger in some critics, e.g. some of those associated with Zoo Check, of sometimes letting their respect for truth be blunted by their reforming zeal, their right, as they no doubt feel it, to regard any

weapon they think may be effective as justified in their fight against remorseless exploiters of animals.

Sometimes, as I have said earlier, those running zoos can be hypocritical, not least in their readiness to claim all zookeeping as genuinely conservational in aim or achievement. But some critics of zoos can also be either hypocritical or else just muddled, not least, it seems to me, in their espousal of the probable need for conservational breeding centres essentially distinct from existing zoos. Sir Christopher Lever, for example, defines such a centre as necessarily specialist, scientific and conservational, and explicitly denies (so at least I understand him) that any zoo fulfils those specifications (1). But it seems to stare one in the face that Jersey (i.e., the Jersey Wildlife Preservation Trust), at least, is specialist, scientific and conservational, and Sir Christopher seems to regard Jersey (as it regards itself) as a zoo (2). I fail here to understand the point of criticising (say) British zoos, no doubt justifiably in many respects, while, it seems, determinedly refusing to pay credit to the work of such a pioneer as Jersey. Even if Sir Christopher disagrees with Jersey's policy (e.g., perhaps, in regard to whether it is useful to keep and breed certain animals outside their country or climate of origin), it still remains the case that Jersey is, precisely, a conservational breeding centre in the terms he has specified.

There seems, in some critics, a reluctance, also, to

give due credit to the fact that, despite zoos' failings, they (or at least certain of them) may be capable of evolving, and even likely to evolve, into the right kind of zoo or conservational breeding centre. As I noted earlier, I think institutions, which of course include zoos, tend themselves to evolve, and it seems to me at least probable that, in practical terms, one is more likely to arrive at a (let us say) fully satisfactory zoo by improving a less satisfactory one than by endeavouring to start a fully satisfactory one from scratch. In any case, even if this were the best course in some respects, it seems most unlikely to be the best course with institutions that keep animals. For, if we close zoos down, and then set about starting "proper" conservational breeding centres, where are the animals to be obtained from? Surely not (in most cases) from the wild, for even presently existing imperfect zoos recognise the moral objections (apart from the legal ones) to taking endangered animals from the wild.

So I do think in some respects that the critics of zoos can be at least rather unclear. It seems to me so obvious that their right course is to praise what is good in zoos, and to condemn their faults, in as strong terms as they feel appropriate. But why seek to condemn all zoos, good and bad? Even where the critic genuinely does oppose all zoos on moral grounds - a position that I think it would be difficult to hold with regard to, e.g., Jersey or Marwell - he can hardly dispute that some are better

than others, so that it would seem a more sensible course to criticise the worst rather than weaken the force of his attack by criticising all, good and bad.

I have not defined zoos at any point, and I doubt that there is much need to do so - after all, the term only came into use by the decision of a music hall artist - but perhaps I ought to have done so, especially in view of a tendency of some critics to define "zoo" in such a way that "zoos are bad" becomes a necessary truth. That is, they sometimes immediately exclude any example one offers of a good zoo, if they admire it also, from being a zoo. This, of course, is partly playing with terms. I suggest that the diversity of origins of zoos should assist us in directing, so far as we can, the ways in which they develop in the future. As I mentioned in chapter 2, I think that in some ways deerparks should be regarded as the best zoos of past centuries. After all, why should not the extremely large enclosures of a zoo such as Whipsnade be regarded as being evolved from deerparks as much as from menageries? One major pioneer of conservational captive breeding was, of course, the Duke of Bedford of Pere David's deer fame, though his work was not appreciated by contemporary zoos. Modern "deerparks", or large breeding parks, may be in many cases the best kind of zoo (or whatever we choose to call it) for captive breeding of, say, ungulates and perhaps some carnivores. But there is a role, too, for zoos of smaller area near cities, provided they can keep their animals, and select

which animals they keep, along the lines of (as I would suggest) the kind of criteria which I have tried to outline. If it can be demonstrated that the animals in such zoos are thriving, then there seems, as I have said, great value in the opportunity so provided for the emotional and even moral, as well as in some degree, one hopes, biological education, of visitors to them.

NOTES TO CHAPTER 18

1. Sir Christopher Lever, "Introduction" to McKenna, op. cit. (p 23 above, Note 18), p 16.
2. Ibid, p 12.